

EAU

PROJECT ID: 1192-00-72

WITH: 1192-00-73

COUNTY: CHIPPEWA

MAY 2020

ORDER OF SHEETS

Section No. 1 Title

Section No. 2 Typical Sections and Details (Includes Erosion Control)

Section No. 3 Estimate of Quantities

Section No. 3 Miscellaneous Quantities

Section No. 4 Right of Way Plan

Section No. 5 Plan and Profile

Section No. 6 Standard Detail Drawings

Section No. 7 Sign Plates

Section No. 8 Structure Plans

Section No. 9 Computer Earthwork Data

Section No. 9 Gross Sections

TOTAL SHEETS = 78

DESIGN DESIGNATION

A.A.D.T. 2020 = 14,070

A.A.D.T. 2040 = 16,740

D.H.V. 2040 = 2,230

D.D. = 59/41

T. = 15.9%

DESIGN SPEED = 70 MPH

ESALS = 6,200,000

CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS

PROPERTY LINE

LOT LINE

LIMITED HIGHWAY EASEMENT

EXISTING RIGHT OF WAY

PROPOSED OR NEW R/W LINE

SLOPE INTERCEPT

REFERENCE LINE

EXISTING CULVERT

PROPOSED CULVERT (Box or Pipe)

COMBUSTIBLE FLUIDS

MARSH AREA

WOODED OR SHRUB AREA

PROFILE

GRADE LINE

ORIGINAL GROUND

MARSH OR ROCK PROFILE (To be noted as such)

SPECIAL DITCH

GRADE ELEVATION

CULVERT (Profile View)

UTILITIES

ELECTRIC

FIBER OPTIC

GAS

SANITARY SEWER

STORM SEWER

TELEPHONE

WATER

UTILITY PEDESTAL

POWER POLE

TELEPHONE POLE

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

CHIPPEWA FALLS - NEW AUBURN

STH 64 TO NORTH COUNTY LINE (NB)

USH 53

CHIPPEWA COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1192-00-72	WISC 2020279	1

STATE PROJECT NUMBER

1192-00-72

END PROJECT

STA 1299'NB'+66

NET EXCEPTION TO CL LENGTH

STA 1126'NB'+09 - STA 1127'NB'+82

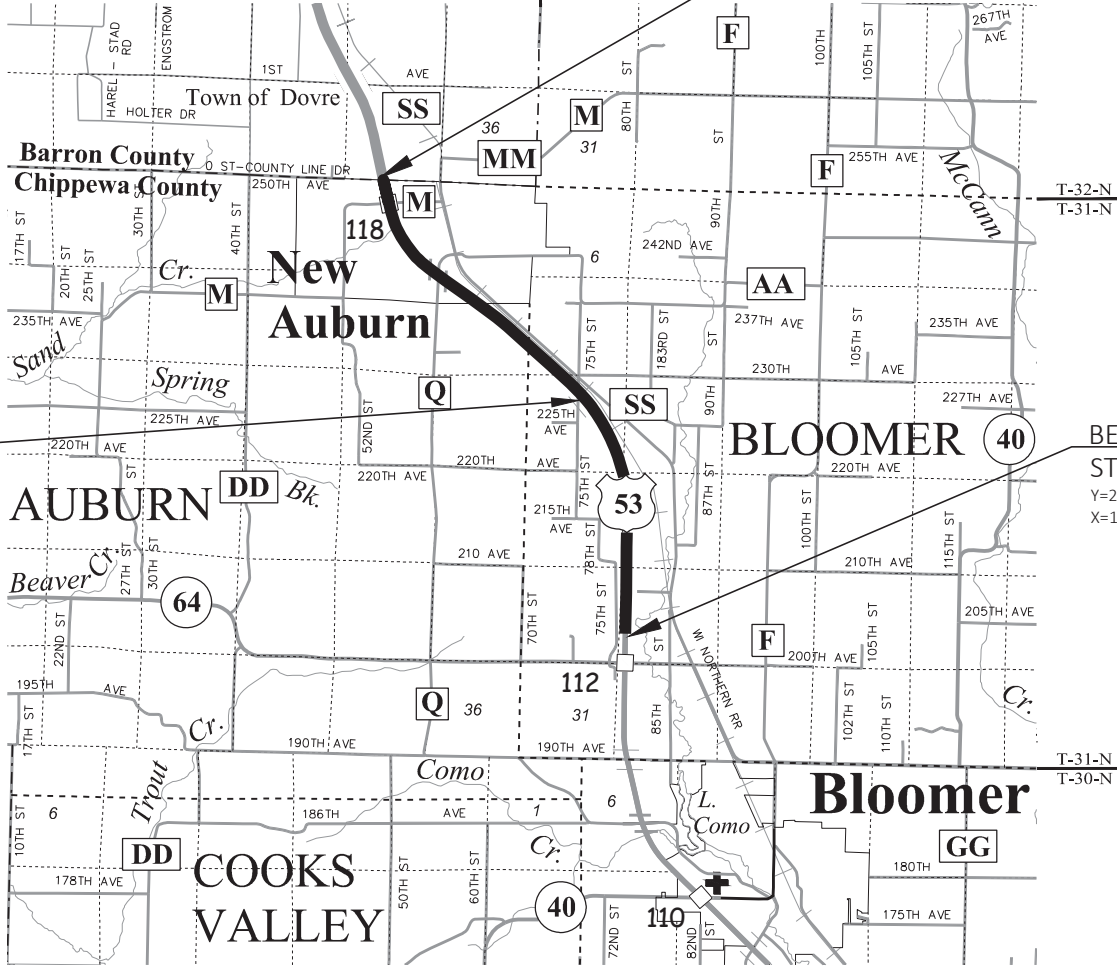
B-09-089

BEGIN PROJECT

STA 1013'NB'+59

Y=206,534.082

X=138,504.497



LAYOUT

SCALE 0 2 MI

TOTAL NET LENGTH OF CENTERLINE = 5.385 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), CHIPPEWA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

emcs, inc.

500 North 17th Avenue

Wausau, WI 54401

715.845.1081 Fax 715.845.1099



1/9/2020

DATE

Stephanie G. Christensen

(SIGNATURE)

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	EMCS, INC.
Designer	EMCS, INC.
Project Manager	TYLER RONGSTAD
Regional Examiner	TOU YANG
Regional Supervisor	JAMES KOENIG

APPROVED FOR THE DEPARTMENT

DATE: 1/9/2020

3/

(Signature)

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GENERAL NOTES

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

AS-BUILTS USED FOR PLAN DEVELOPMENT

PROJECT NO: 1190-00-63, CONSTRUCTION YEAR: 2012
PROJECT NO: 1191-09-74, CONSTRUCTION YEAR: 2008
PROJECT NO: 1191-09-76, CONSTRUCTION YEAR: 2007
PROJECT NO: 1191-09-75, CONSTRUCTION YEAR: 2005
PROJECT NO: 1192-02-73, CONSTRUCTION YEAR: 1996
PROJECT NO: 1192-01-71, CONSTRUCTION YEAR: 1972
PROJECT NO: 1191-01-71, CONSTRUCTION YEAR: 1970

ORDER OF SECTION 2 SHEETS

PROJECT OVERVIEW
TYPICAL SECTIONS
CONSTRUCTION DETAILS
TRAFFIC CONTROL

ALIGNMENT DESIGNATORS

'NB' - USH 53 NORTHBOUND
'A' - CTH M/ USH 53 NORTHBOUND EXIT RAMP
'B' - CTH M/ USH 53 NORTHBOUND ENTRANCE RAMP
'C' - CTH M/ USH 53 SOUTHBOUND EXIT RAMP*
'D' - CTH M/ USH 53 SOUTHBOUND ENTRANCE RAMP*
'SB' - USH 53 SOUTHBOUND *

* CTH M/ USH 53 SOUTHBOUND EXIT RAMP, CTH M/ USH 53 SOUTHBOUND ENTRANCE RAMP, AND USH 53 SOUTHBOUND ALIGNMENT SHOWN ON TYPICAL SECTIONS AND SECTION 5 PLAN SHEETS FOR GRAPHICAL REFERENCE ONLY. SEE PROJECT ID 1192-00-73 PLANS.

COMMUNICATIONS

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(F/K/A PACKERLAND BROADBAND)
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BLOOMER TELEPHONE COMPANY
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BLOOMER, WI 54724
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CINC
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CITIZENS CONNECTED
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UTILITIES

ELECTRIC

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RWRUCK@CVE.COOP

XCEL ENERGY
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GAS

WE ENERGIES
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www.DiggersHotline.com

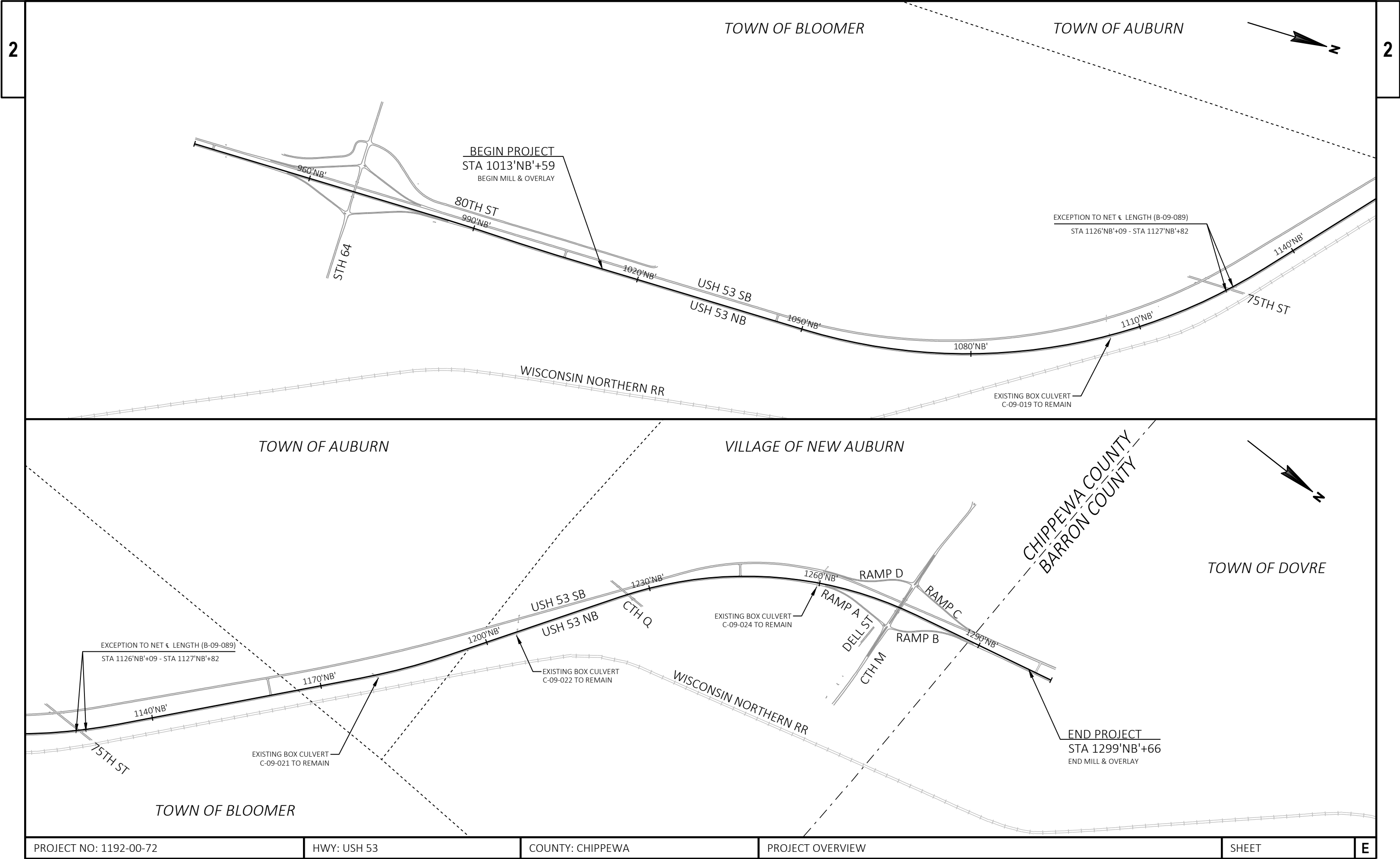
OTHER CONTACTS

US ARMY CORPS OF ENGINEERS

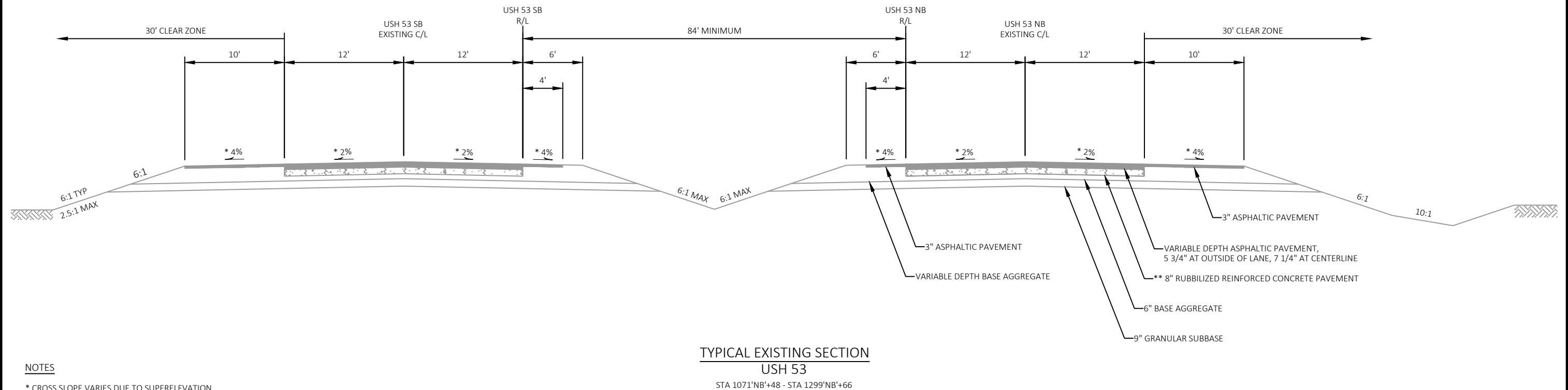
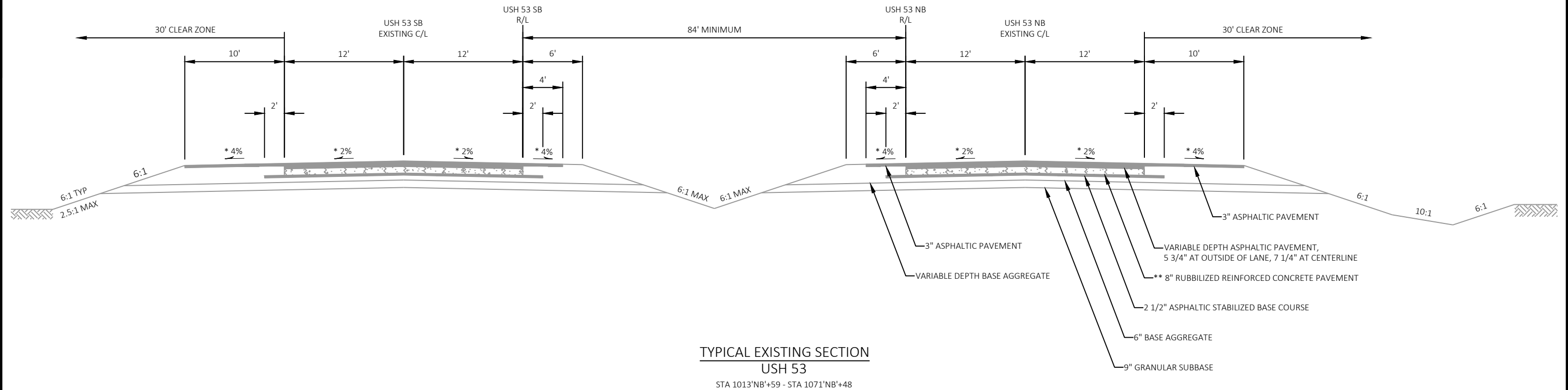
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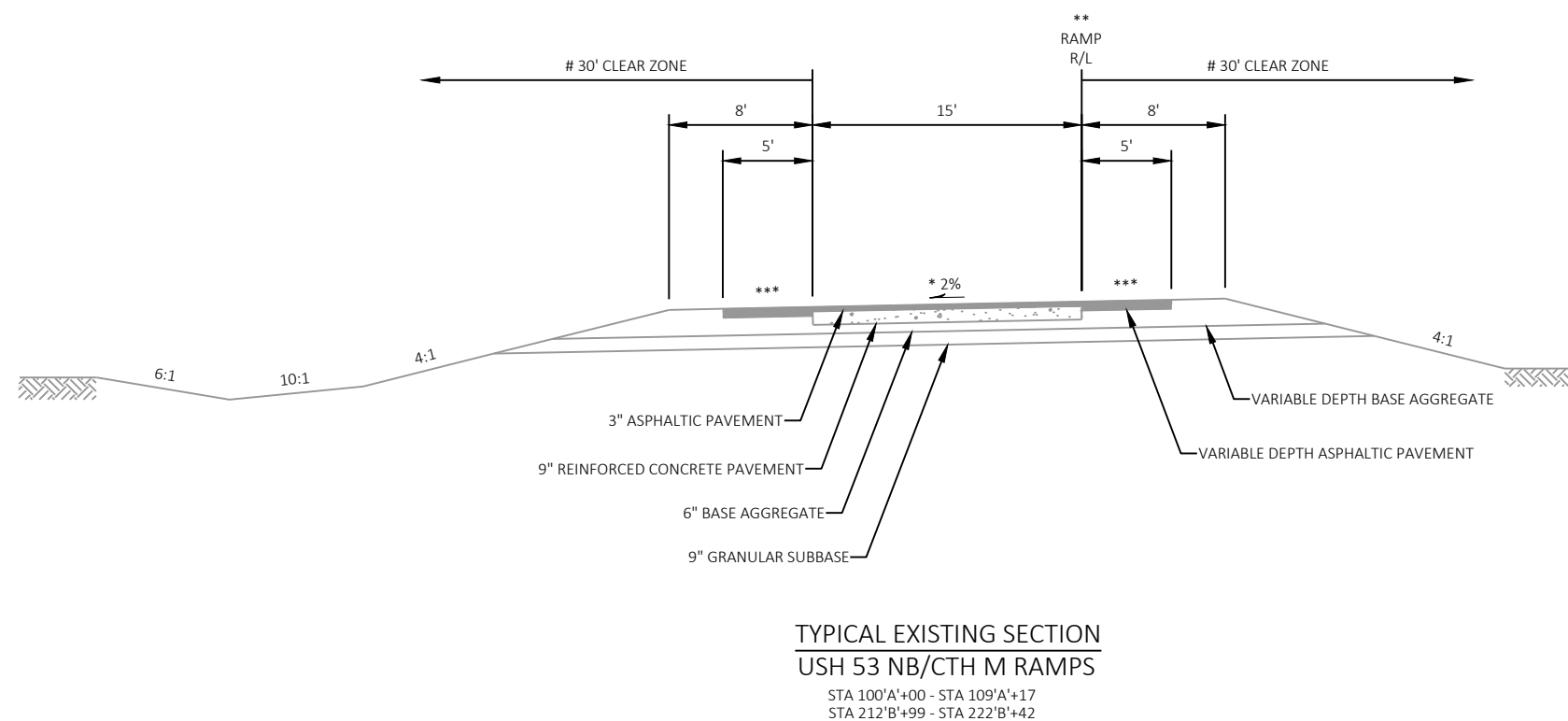
PROJECT NO: 1192-00-72	HWY: USH 53	COUNTY: CHIPPEWA	PROJECT OVERVIEW	SHEET	E
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**NOTES**

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

** EXISTING CROSS SLOPE OF CONCRETE PAVEMENT AND BELOW WAS CONSTRUCTED AT 1.0%.

SEE SECTION 5 PLAN SHEETS FOR EXISTING GUARDRAIL LOCATIONS.



NOTES

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

** REFERENCE LINE LOCATION SHOWN IN RELATION TO DIRECTION OF TRAVEL.

*** SHOULDER CROSS SLOPES TYPICALLY MATCH TRAVEL LANE CROSS SLOPES.

ASSUMED CLEAR ZONE.

SEE SECTION 5 PLAN SHEET FOR TURN LANE LOCATIONS.

PROJECT NO: 1192-00-72

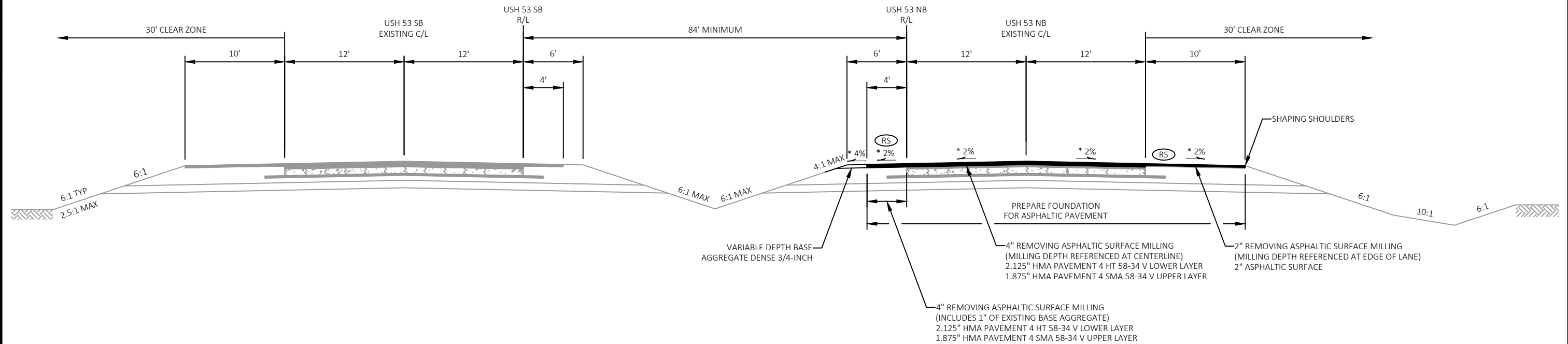
HWY: USH 53

COUNTY: CHIPPEWA

TYPICAL SECTIONS

SHEET

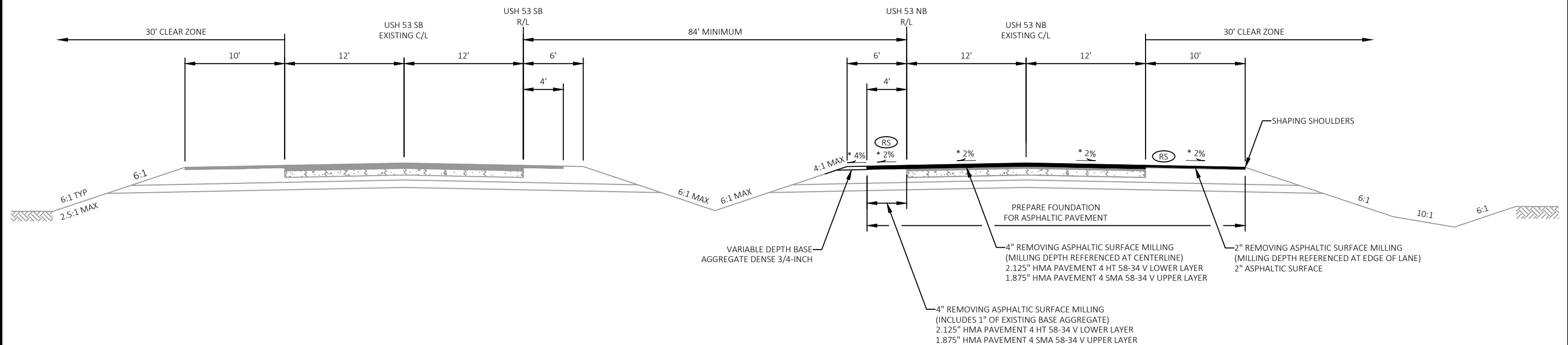
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TYPICAL FINISHED SECTION

USH 53

STA 1013'NB'+59 - STA 1071'NB'+48



TYPICAL FINISHED SECTION

USH 53

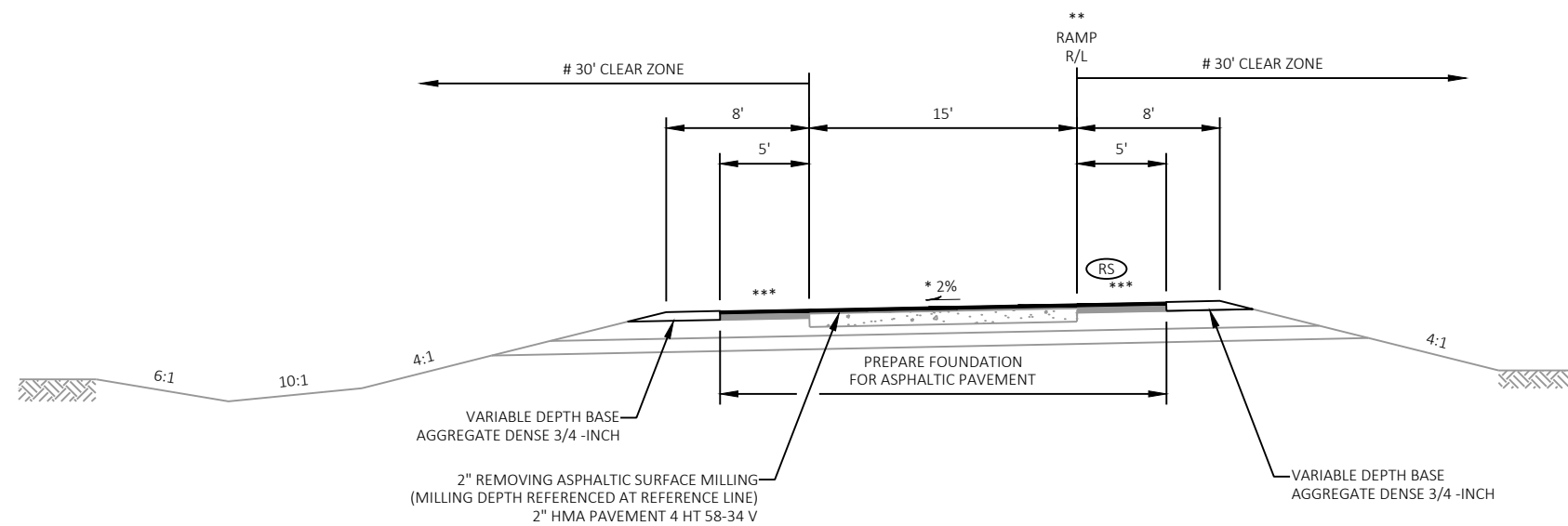
STA 1071'NB'+48 - STA 1299'NB'+66

NOTES

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

REMOVAL OF ALL PAVEMENT MARKERS PRIOR TO MILLING IS INCIDENTAL TO REMOVING ASPHALTIC SURFACE MILLING.

(RS) ASPHALTIC SHOULDER RUMBLE STRIP. SEE SDD "SHOULDER RUMBLE STRIP, MILLING" FOR ADDITIONAL INFORMATION.



TYPICAL FINISHED SECTION
USH 53 NB/CTH M RAMP

STA 100'A'+00 - STA 109'A'+17
STA 212'B'+99 - STA 222'B'+42

NOTES

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

** REFERENCE LINE LOCATION SHOWN IN RELATION TO DIRECTION OF TRAVEL.

*** SHOULDER CROSS SLOPES TYPICALLY MATCH TRAVEL LANE CROSS SLOPES.

ASSUMED CLEAR ZONE.

(RS) ASPHALTIC SHOULDER RUMBLE STRIP. SEE SDD "SHOULDER RUMBLE STRIP, MILLING"
FOR ADDITIONAL INFORMATION.

PROJECT NO: 1192-00-72

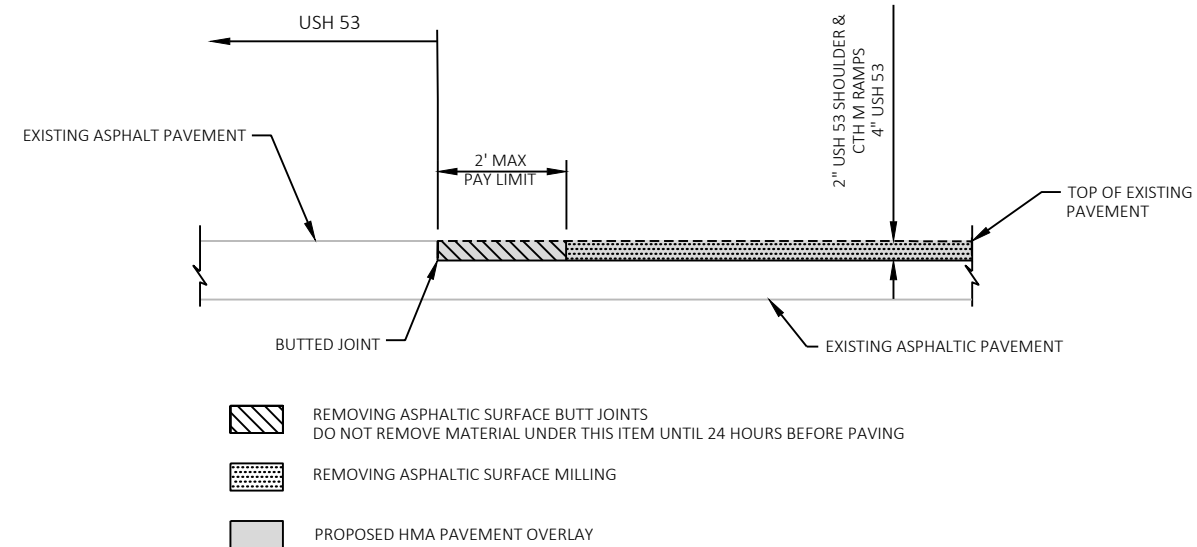
HWY: USH 53

COUNTY: CHIPPEWA

TYPICAL SECTIONS

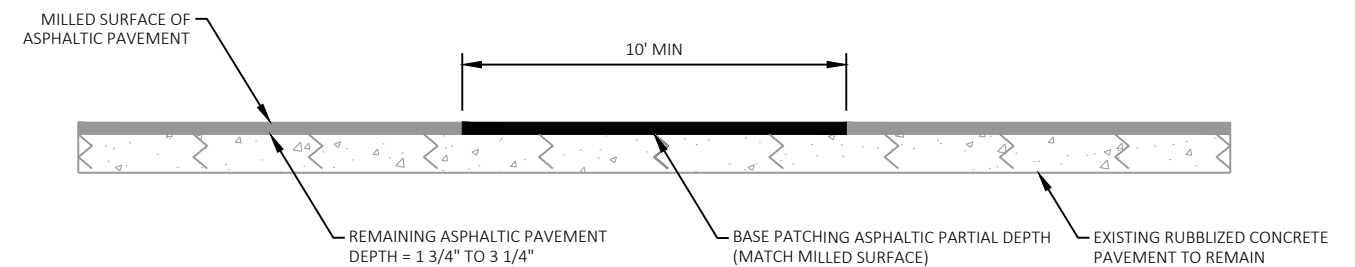
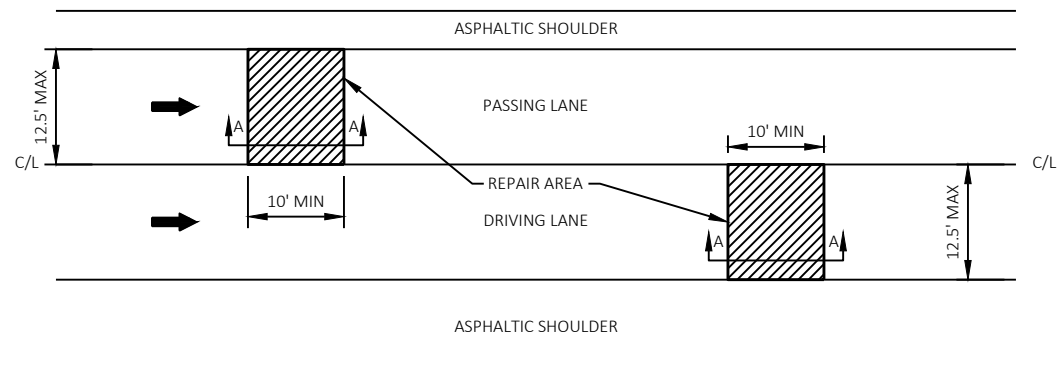
SHEET

E



BUTT JOINT DETAIL

STA 1013'NB'+59
STA 1126'NB'+09 (B-09-089)
STA 1127'NB'+82 (B-09-089)
STA 1299'NB'+66
STA 109'A'+17
STA 212'B'+99



SECTION A-A

NOTES

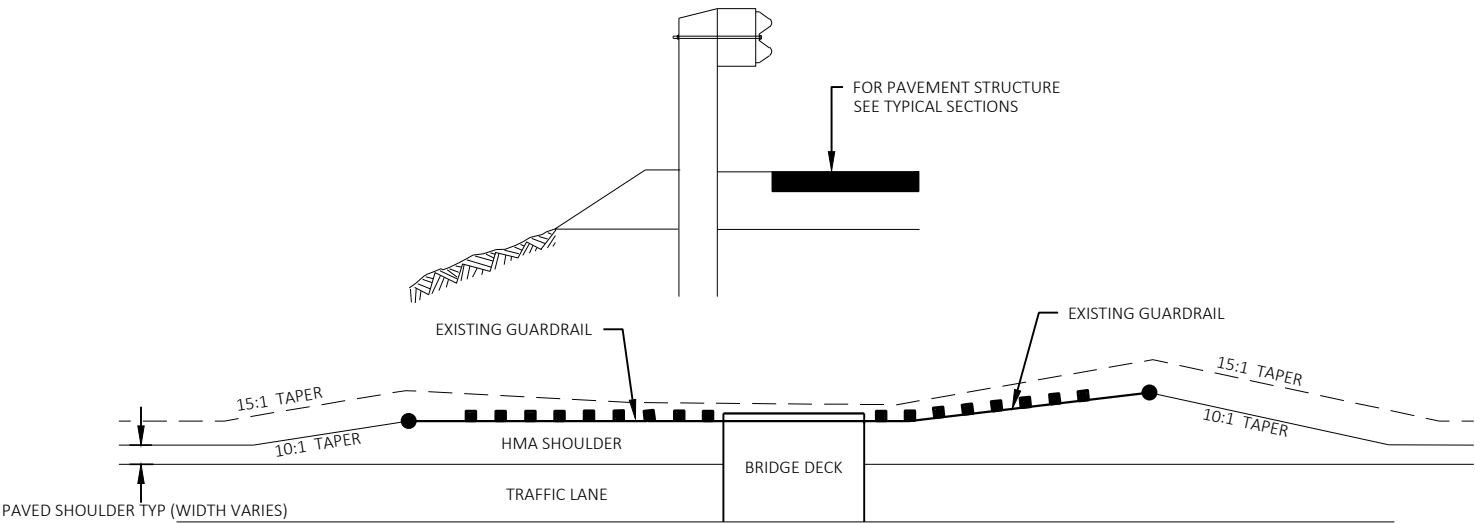
PARTIAL DEPTH ASPHALT REPAIR AREA SIZE IS ESTIMATED AND MAY VARY DEPENDING ON OBSERVED FIELD CONDITIONS.

ANY PARTIAL DEPTH REPAIR MUST BE COMPLETED AT LEAST ONE DAY PRIOR TO THE LOWER HMA PAVEMENT PLACEMENT IN THE TRAVEL LANES.

THE BASE PATCHING ASPHALTIC PARTIAL DEPTH PAVEMENT SHALL BE PLACED AT A MAXIMUM THICKNESS OF 4-INCHES PER LAYER.

BASE PATCHING ASPHALTIC PARTIAL DEPTH DETAIL

LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER



HMA SHOULDER AT GUARDRAIL DETAIL

SEE SECTION 5 PLAN SHEETS FOR EXISTING GUARDRAIL LOCATIONS

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP- TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE- TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						

TOTAL PROJECT AREA = 131 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0 ACRES

TRAFFIC CONTROL GENERAL NOTES

- 1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
- 2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
- 3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS PER SDDS.
- 4. FOR USH 53 LANE CLOSURES SEE SDD " TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".
- 5. FOR USH 53 NEAR EXIT AND ENTRANCE RAMP SEE SDD "TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE", SDD "TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE", AND SDD "TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE".
- 6. FOR USH 53 SHOULDER CLOSURES SEE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.PH.".
- 7. TRAFFIC CONTROL PLANS FOR USH 53 PROVIDED SUGGESTED STAGING WITH TRAFFIC CONTROL DEVICE LOCATIONS. STAGING MAY BE ALTERED WITH APPROVAL OF THE ENGINEER BASED ON OPERATIONS PROPOSED BY THE CONTRACTOR.

NOTES

COMPLETE USH 53 NB WORK ONE LANE AT A TIME. SEE TRAFFIC CONTROL TYPICAL SECTIONS.

COMPLETE CTH M RAMP WORK HALF AT A TIME. SEE TRAFFIC CONTROL TYPICAL SECTIONS.

COORDINATE WITH WORK SHOWN IN PROJECT ID 1192-00-73.

* WIDTH RESTRICTION SIGNING FOR WORK ON USH 53 NB RAMPS AT CTH M IS INCLUDED IN PROJECT ID 1192-00-73.

PCMS GENERAL NOTES

ADJUST TRAFFIC CONTROL PCMS MESSAGES AS NEEDED BASED ON CONSTRUCTION SCHEDULE.

CONSIDER GEOMETRICS WHEN LOCATING MESSAGE BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1,000 FEET IN FRONT OF THE MESSAGE BOARD. PLACE MESSAGE BOARDS AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY.

PLACE TRAFFIC CONTROL SIGNS PCMS AND DISPLAY THE MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK. ADJUST THE MESSAGE DATE ACCORDINGLY.

* TRAFFIC CONTROL SIGNS PCMS FOR WORK ON USH 53 NB RAMPS AT CTH M ARE INCLUDED IN PROJECT ID 1192-00-73.

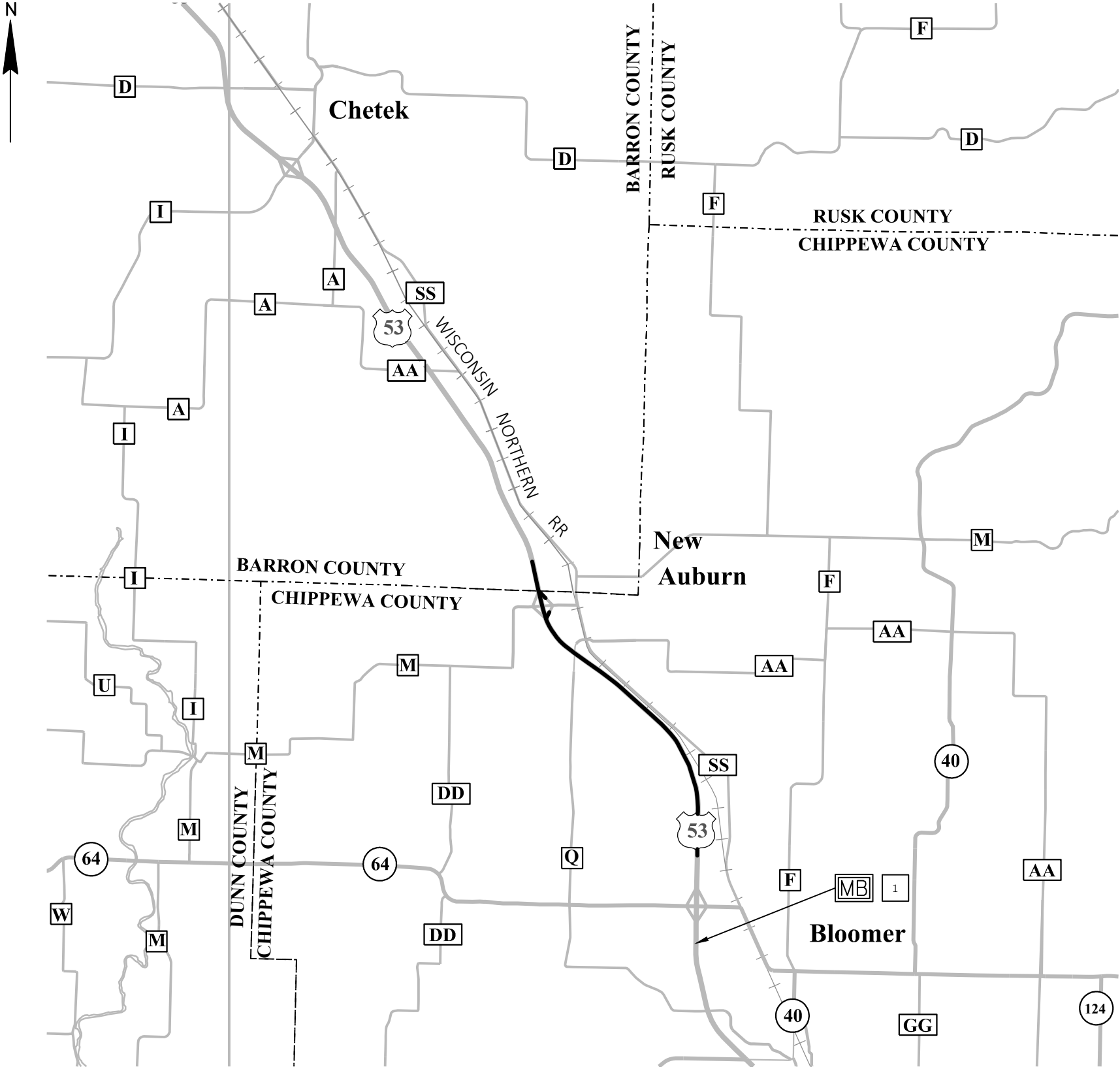
LEGEND

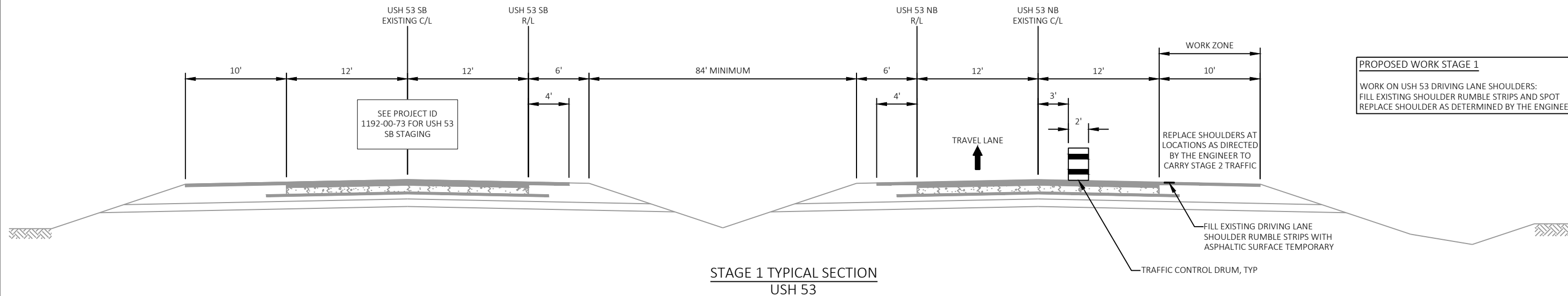
MB

TRAFFIC CONTROL SIGN PCMS

WORK ZONE

TRAFFIC CONTROL SIGNS PCMS MESSAGES					
		PRIOR TO CONSTRUCTION		DURING CTH M RAMP WIDTH RESTRICTIONS *	
PCMS SIGN LOCATION		PHASE 1 (2 SEC)	PHASE 2 (2 SEC)	PHASE 1 (2 SEC)	PHASE 2 (2 SEC)
1	USH 53 NB 0.5 MILES SOUTH OF STH 64 RAMP PROJECT LIMITS	HWY 53 WORK STARTS	STARTING DATE	HWY M RAMPS	MAX 12.5 FT WIDTH





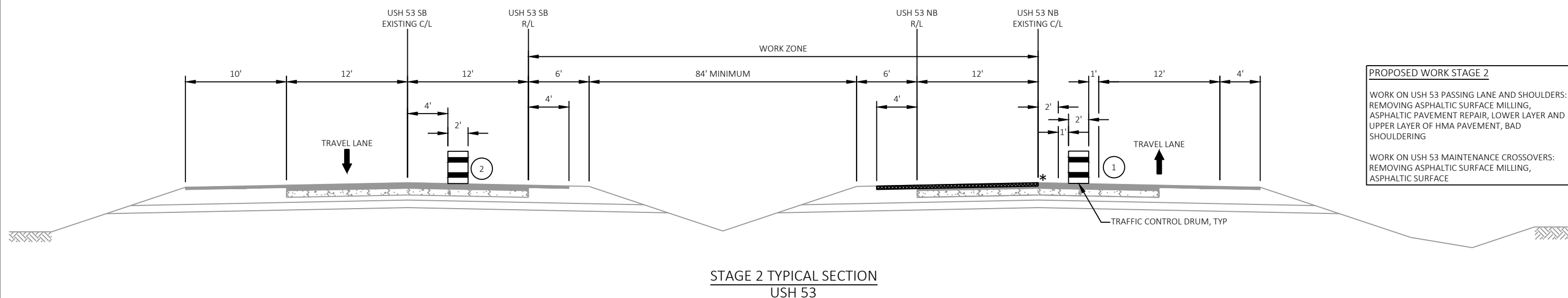
PROPOSED WORK STAGE 1

WORK ON USH 53 DRIVING LANE SHOULDERS:
FILL EXISTING SHOULDER RUMBLE STRIPS AND SPOT
REPLACE SHOULDER AS DETERMINED BY THE ENGINEER

NOTES

SPOT REPLACEMENT OF SHOULDER, IF REQUIRED BY
ENGINEER, WILL CONSIST OF FULL DEPTH PAVEMENT
REMOVAL AND REPLACEMENT WITH ASPHALTIC
SURFACE PATCHING MATCHING EXISTING

* DROP-OFFS SHALL MEET THE REQUIREMENTS OF
STANDARD SPEC 104.6.1.2.3.

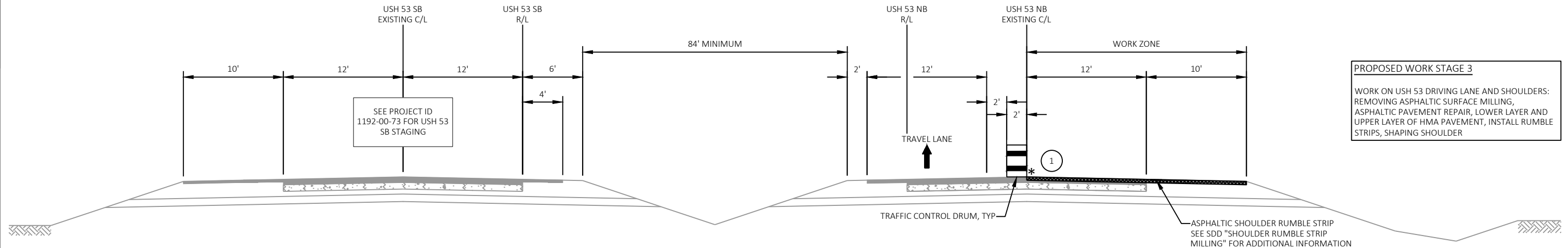


PROPOSED WORK STAGE 2

WORK ON USH 53 PASSING LANE AND SHOULDERS:
REMOVING ASPHALTIC SURFACE MILLING,
ASPHALTIC PAVEMENT REPAIR, LOWER LAYER AND
UPPER LAYER OF HMA PAVEMENT, BAD
SHOULDERING

WORK ON USH 53 MAINTENANCE CROSSOVERS:
REMOVING ASPHALTIC SURFACE MILLING,
ASPHALTIC SURFACE

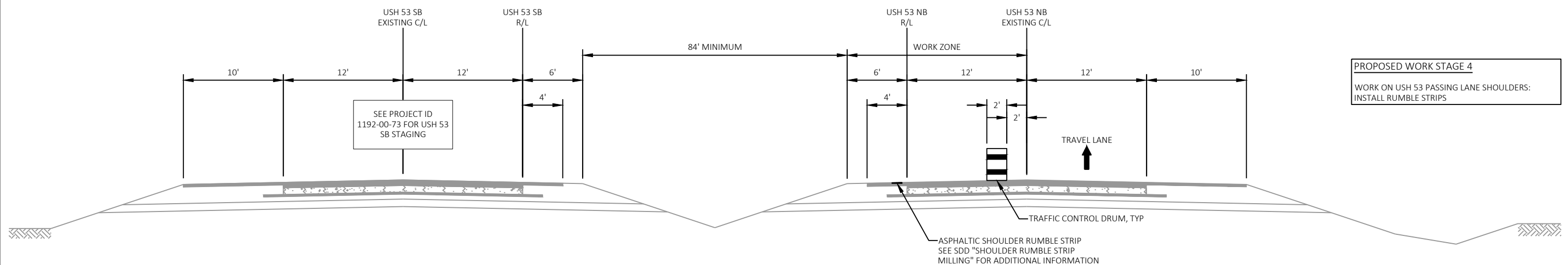
- 1 DRUM LOCATION SHOWN FOR AREAS IMMEDIATELY ADJACENT TO
CONSTRUCTION ACTIVITIES, SHIFT DRUMS PAST LANE LINE IN AREAS WITH
NO CONSTRUCTION ACTIVITIES UNLESS A VERTICAL DROP IS PRESENT.
- 2 CLOSE THE SOUTHBOUND PASSING LANE DURING MAINTENANCE
CROSSOVER CONSTRUCTION WORK ADJACENT TO SOUTHBOUND USH 53
ACCORDING TO PROJECT ID 1192-00-73. MAINTAIN TRAFFIC ON BOTH
EXISTING SOUTHBOUND TRAVEL LANES AT ALL OTHER TIMES. UNLESS
WORK IS ONGOING AS SHOWN IN PROJECT ID 1192-00-73.



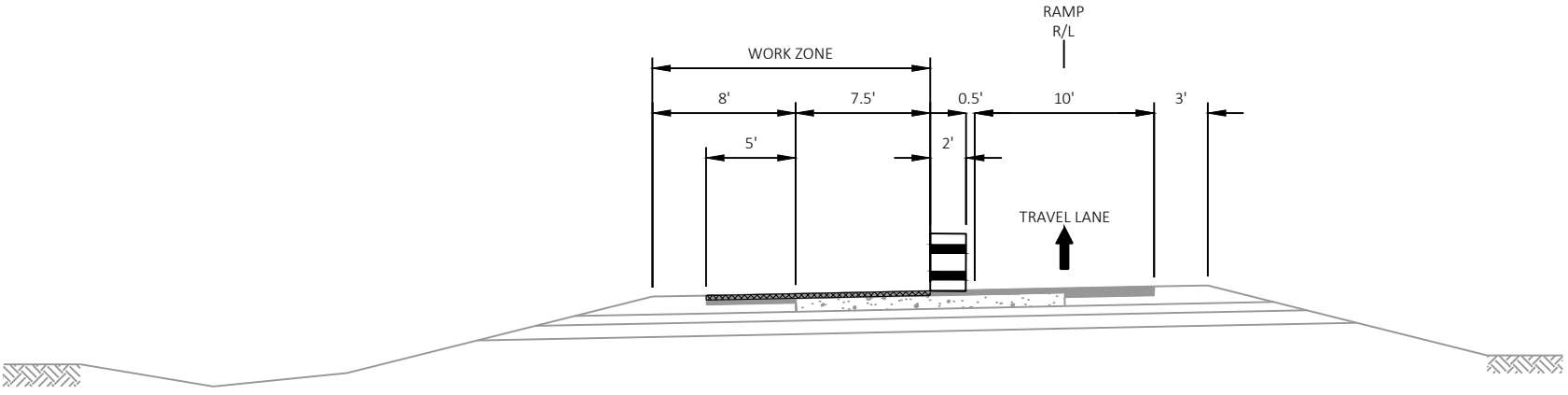
STAGE 3 TYPICAL SECTION
USH 53

1 DRUM LOCATION SHOWN FOR AREAS IMMEDIATELY ADJACENT TO
CONSTRUCTION ACTIVITIES, SHIFT DRUMS PAST LANE LINE IN AREAS WITH
NO CONSTRUCTION ACTIVITIES UNLESS A VERTICAL DROP IS PRESENT.

NOTE
* DROP-OFFS SHALL MEET THE REQUIREMENTS OF
STANDARD SPEC 104.6.1.2.3.



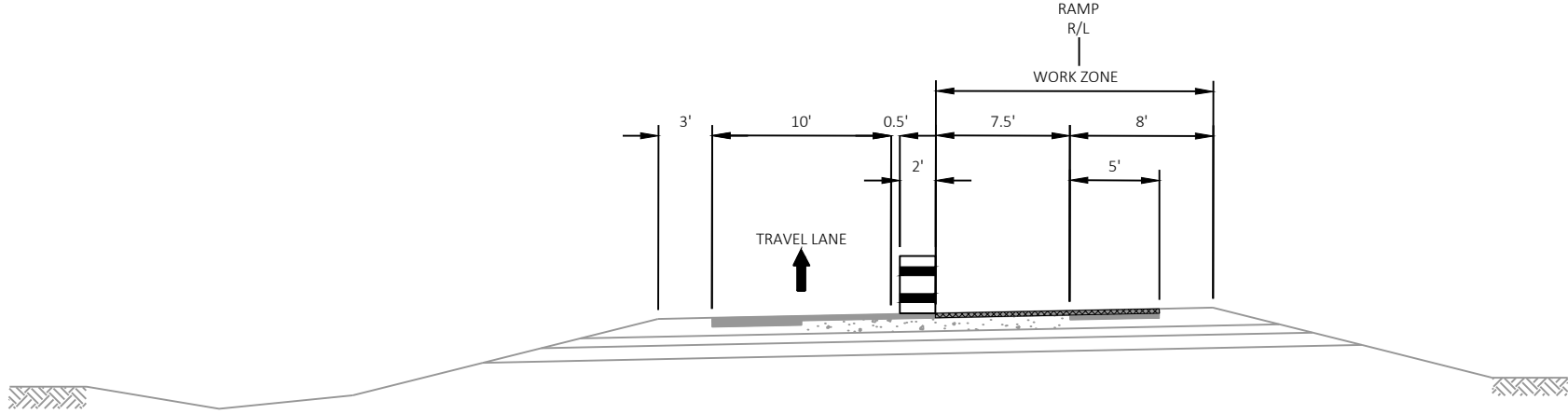
STAGE 4 TYPICAL SECTION
USH 53



STAGE M1
USH 53 NB/CTH M RAMP

PROPOSED WORK STAGE M1

WORK ON USH 53/CTH M INTERCHANGE RAMP
INSIDE HALF OF LANE AND SHOULDERS: MILL AND
OVERLAY



STAGE M2
USH 53 NB/CTH M RAMP

PROPOSED WORK STAGE M2

WORK ON USH 53/CTH M INTERCHANGE RAMP
OUTSIDE HALF OF LANE AND SHOULDERS: MILL AND
OVERLAY

NOTE

WIDTH RESTRICTION SIGNING FOR WORK ON CTH
M RAMP IS INCLUDED IN PROJECT ID 1192-00-73.

Estimate Of Quantities By Plan Sets

1192-00-72					
Line	Item	Item Description	Unit	Total	Qty
0004	204.0110	Removing Asphaltic Surface	SY	1,670.000	1,670.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	56.000	56.000
0008	204.0125	Removing Asphaltic Surface Milling	TON	23,330.000	23,330.000
0014	204.0180	Removing Delineators and Markers	EACH	129.000	129.000
0018	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1192-00-72	LS	1.000	1.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	15.000	15.000
0024	213.0100	Finishing Roadway (project) 01. 1192-00-72	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	920.000	920.000
0032	305.0500	Shaping Shoulders	STA	288.000	288.000
0036	455.0605	Tack Coat	GAL	13,090.000	13,090.000
0038	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	0.500	0.500
0040	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	0.500	0.500
0042	460.0115.S	HMA Pavement Test Strips Volumetrics	EACH	0.500	0.500
0044	460.0120.S	HMA Pavement Test Strips Density	EACH	0.500	0.500
0046	460.2000	Incentive Density HMA Pavement	DOL	5,815.000	5,815.000
0048	460.2005	Incentive Density PWL HMA Pavement	DOL	8,780.000	8,780.000
0050	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	11,375.000	11,375.000
0052	460.2010	Incentive Air Voids HMA Pavement	DOL	10,660.000	10,660.000
0054	460.7644	HMA Pavement 4 HT 58-34 V	TON	10,660.000	10,660.000
0056	460.8644	HMA Pavement 4 SMA 58-34 V	TON	9,090.000	9,090.000
0058	465.0105	Asphaltic Surface	TON	3,630.000	3,630.000
0060	465.0110	Asphaltic Surface Patching	TON	450.000	450.000
0062	465.0125	Asphaltic Surface Temporary	TON	70.000	70.000
0064	465.0400	Asphaltic Shoulder Rumble Strips	LF	53,250.000	53,250.000
0066	520.8700	Cleaning Culvert Pipes	EACH	22.000	22.000
0072	614.0400	Adjusting Steel Plate Beam Guard	LF	250.000	250.000
0074	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1192-00-72	EACH	1.000	1.000
0078	619.1000	Mobilization	EACH	0.500	0.500
0082	624.0100	Water	MGAL	9.000	9.000
0110	633.0100	Delineator Posts Steel	EACH	92.000	92.000
0112	633.0500	Delineator Reflectors	EACH	95.000	95.000
0114	633.5200	Markers Culvert End	EACH	39.000	39.000
0116	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	5.000	5.000
0126	638.2102	Moving Signs Type II	EACH	5.000	5.000
0130	638.3000	Removing Small Sign Supports	EACH	5.000	5.000
0134	638.4000	Moving Small Sign Supports	EACH	5.000	5.000
0136	642.5001	Field Office Type B	EACH	0.500	0.500
0138	643.0300	Traffic Control Drums	DAY	33,980.000	33,980.000

Estimate Of Quantities By Plan Sets

1192-00-72					
Line	Item	Item Description	Unit	Total	Qty
0140	643.0420	Traffic Control Barricades Type III	DAY	2,694.000	2,694.000
0142	643.0705	Traffic Control Warning Lights Type A	DAY	5,388.000	5,388.000
0144	643.0715	Traffic Control Warning Lights Type C	DAY	3,339.000	3,339.000
0146	643.0800	Traffic Control Arrow Boards	DAY	176.000	176.000
0148	643.0900	Traffic Control Signs	DAY	4,204.000	4,204.000
0150	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0154	643.1050	Traffic Control Signs PCMS	DAY	17.000	17.000
0156	643.5000	Traffic Control	EACH	0.500	0.500
0158	646.1020	Marking Line Epoxy 4-Inch	LF	400.000	400.000
0160	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	56,650.000	56,650.000
0162	646.1555	Marking Line Grooved Contrast Permanent Tape 4-Inch	LF	8,040.000	8,040.000
0164	646.3555	Marking Line Grooved Contrast Permanent Tape 8-Inch	LF	1,470.000	1,470.000
0166	646.7220	Marking Chevron Epoxy 24-Inch	LF	110.000	110.000
0172	646.9000	Marking Removal Line 4-Inch	LF	550.000	550.000
0174	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	4,430.000	4,430.000
0176	649.0250	Temporary Marking Line Removable Tape 8-Inch	LF	1,400.000	1,400.000
0180	650.8000	Construction Staking Resurfacing Reference	LF	28,607.000	28,607.000
0182	650.9910	Construction Staking Supplemental Control (project) 01. 1192-00-72	LS	1.000	1.000
0186	690.0150	Sawing Asphalt	LF	1,800.000	1,800.000
0190	740.0440	Incentive IRI Ride	DOL	21,672.000	21,672.000
0194	SPV.0105	Special 01. Material Transfer Vehicle 1192-00-72	LS	1.000	1.000
0202	SPV.0180	Special 01. Base Patching Asphaltic Partial Depth	SY	1,000.000	1,000.000

3

REMOVAL ITEMS										
						204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0125 REMOVING ASPHALTIC SURFACE MILLING TON	204.0180* REMOVING DELINEATORS AND MARKERS EACH		
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT				COMMENTS	
0010	1013+59	-	1070+00	LT&RT	"NB"	4	2,180	--	PASSING LANE AND SHOULDER	
	1013+59	-	1070+00	LT&RT	"NB"	3	1,660	--	DRIVING LANE	
	1013+59	-	1070+00	LT&RT	"NB"	2	730	--	DRIVING LANE SHOULDER	
		1045+29		LT	"NB"	--	40	--	MAINTENANCE CROSSOVER	
	1070+00		-	1126+09	LT&RT	"NB"	6	2,190	--	PASSING LANE AND SHOULDER
	1070+00	-	1126+09	LT&RT	"NB"	4	1,640	--	DRIVING LANE	
	1070+00	-	1126+09	LT&RT	"NB"	4	730	--	DRIVING LANE SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	6	2,220	--	PASSING LANE AND SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	4	1,650	--	DRIVING LANE	
	1127+82	-	1185+00	LT&RT	"NB"	4	740	--	DRIVING LANE SHOULDER	
		1161+10		LT	"NB"	--	90	--	MAINTENANCE CROSSOVER	
	1185+00		-	1246+00	LT&RT	"NB"	--	2,340	--	PASSING LANE AND SHOULDER
	1185+00	-	1246+00	LT&RT	"NB"	--	1,770	--	DRIVING LANE	
	1185+00	-	1246+00	LT&RT	"NB"	--	790	--	DRIVING LANE SHOULDER	
	1246+00	-	1299+66	LT&RT	"NB"	4	2,070	--	PASSING LANE AND SHOULDER	
	1246+00	-	1299+66	LT&RT	"NB"	3	1,560	--	DRIVING LANE	
	1246+00	-	1299+66	LT&RT	"NB"	2	440	--	DRIVING LANE SHOULDER	
		1246+06		LT	"NB"	--	70	--	MAINTENANCE CROSSOVER	
	100+00		-	109+17	LT&RT	"A"	6	210	9	NORTHBOUND EXIT RAMP
	212+99	-	222+42	LT&RT	"B"	4	210	9	NORTHBOUND ENTRANCE RAMP	
	PROJECT						--	--	72	
	TOTALS						56	23,330	90	

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

BASE AGGREGATE ITEMS									
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0500 SHAPING SHOULDERS STA	COMMENTS	
0010	1013+59	-	1070+00	LT&RT	"NB"	170	--	PASSING LANE SHOULDER	
	1013+59	-	1070+00	LT&RT	"NB"	--	57	DRIVING LANE SHOULDER	
	1070+00	-	1126+09	LT&RT	"NB"	170	--	PASSING LANE SHOULDER	
	1070+00	-	1126+09	LT&RT	"NB"	--	57	DRIVING LANE SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	170	--	PASSING LANE SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	--	58	DRIVING LANE SHOULDER	
	1185+00	-	1246+00	LT&RT	"NB"	190	--	PASSING LANE SHOULDER	
	1185+00	-	1246+00	LT&RT	"NB"	--	61	DRIVING LANE SHOULDER	
	1246+00	-	1299+66	LT&RT	"NB"	160	--	PASSING LANE SHOULDER	
	1246+00	-	1299+66	LT&RT	"NB"	--	35	DRIVING LANE SHOULDER	
	100+00	-	109+17	LT&RT	"A"	30	10	NORTHBOUND EXIT RAMP	
	212+99	-	222+42	LT&RT	"B"	30	10	NORTHBOUND ENTRANCE RAMP	
TOTALS						920	288		

BASE PATCHING ITEMS			
CATEGORY	LOCATION	SPV.0180.01 BASE PATCHING ASPHALTIC PARTIAL DEPTH SY	
0010	PROJECT	1,000	
TOTAL		1,000	

ASPHALTIC SHOULDER REPAIR ITEMS					
CATEGORY	LOCATION	204.0110 REMOVING ASPHALTIC SURFACE SY	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	465.0110* ASPHALTIC SURFACE PATCHING TON	690.0150 SAWING ASPHALT LF
0010	PROJECT	1,670	15	90	1,800
REPLACE SHOULDERS AT LOCATIONS AS DIRECTED BY THE ENGINEER					
TOTALS		1,670	15	90	1,800

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

MISCELLANEOUS ASPHALTIC ITEMS				
CATEGORY	LOCATION	211.0100.01 PREPARE FOUNDATION FOR ASPHALTIC PAVING (1192-00-72) LS	213.0100.01 FINISHING ROADWAY (1192-00-72) EACH	SPV.0105.01 MATERIAL TRANSFER VEHICLE (1192-00-72) LS
0010	PROJECT	1	1	1
TOTALS		1	1	1

3

ASPHALTIC ITEMS																					
						455.0605	460.0105.S	460.0110.S	HMA PAVEMENT 4 HT 58-34 V			HMA PAVEMENT 4 SMA 58-34 V		460.0115.S	460.0120.S	465.0105	465.0110*	465.0125	465.0400		
									LOWER LAYER (USH 53), UPPER LAYER (CTH M RAMPS)			UPPER LAYER									
									UNDERLYING SURFACE: MILLED EXISTNG HMA SURFACE			UNDERLYING SURFACE: 4 HT 58-34-V									
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	TACK COAT GAL	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP VOLUMETRICS EACH	HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP DENSITY EACH	460.7644 TON	INCENTIVE DENSITY PWL HMA PAVEMENT TON**	INCENTIVE AIR VOIDS HMA PAVEMENT TON***	460.8644 TON	INCENTIVE DENSITY HMA PAVEMENT TON****	HMA PAVEMENT TEST STRIP VOLUMETRICS EACH	HMA PAVEMENT TEST STRIP DENSITY EACH	ASPHALTIC SURFACE TON	ASPHALTIC SURFACE PATCHING TON	ASPHALTIC SURFACE TEMPORARY TON	ASPHALTIC SHOULDER RUMBLE STRIPS LF	COMMENTS	
0010	1013+59	-	1070+00	LT&RT	"NB"	1,190	--	--	1,160	870	1,160	1,020	1,020	--	--	--	--	--	5,540	PASSING LANE AND SHOULDER	
	1013+59	-	1070+00	LT&RT	"NB"	910	--	--	880	880	880	780	780	--	--	--	--	--	--	DRIVING LANE	
	1013+59	-	1070+00	LT&RT	"NB"	460	--	--	--	--	--	--	--	--	--	730	--	--	5,640	DRIVING LANE SHOULDER	
	1045+29	-	1070+00	LT	"NB"	20	--	--	--	--	--	--	--	--	--	40	--	--	--	MAINTENANCE CROSSOVER	
				LT&RT	"NB"	1,200	--	--	1,160	870	1,160	1,030	1,030	--	--	--	--	--	5,610	PASSING LANE AND SHOULDER	
	1070+00	-	1126+09	LT&RT	"NB"	890	--	--	870	870	870	770	770	--	--	--	--	--	--	DRIVING LANE	
	1070+00	-	1126+09	LT&RT	"NB"	460	--	--	--	--	--	--	--	--	--	730	--	--	5,610	DRIVING LANE SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	1,210	--	--	1,180	885	1,180	1,040	1,040	--	--	--	--	--	5,620	PASSING LANE AND SHOULDER	
	1127+82	-	1185+00	LT&RT	"NB"	900	--	--	880	880	880	770	770	--	--	--	--	--	--	DRIVING LANE	
	1127+82	-	1185+00	LT&RT	"NB"	470	--	--	--	--	--	--	--	--	--	--	740	--	--	5,720	DRIVING LANE SHOULDER
	1161+10	-	1246+00	LT	"NB"	60	--	--	--	--	--	--	--	--	--	--	90	--	--	--	MAINTENANCE CROSSOVER
				LT&RT	"NB"	1,280	--	--	1,240	930	1,240	1,100	1,100	--	--	--	--	--	6,060	PASSING LANE AND SHOULDER	
				LT&RT	"NB"	960	--	--	940	940	940	830	830	--	--	--	--	--	--	DRIVING LANE	
				LT&RT	"NB"	510	--	--	--	--	--	--	--	--	790	--	--	--	6,100	DRIVING LANE SHOULDER	
1246+00	-	1299+66	LT&RT	"NB"	1,130	--	--	1,100	825	1,100	970	970	--	--	--	--	--	5,310	PASSING LANE AND SHOULDER		
1246+00	-	1299+66	LT&RT	"NB"	850	--	--	830	830	830	780	780	--	--	--	--	--	--	--	DRIVING LANE	
1246+00	-	1299+66	LT&RT	"NB"	280	--	--	--	--	--	--	--	--	--	440	--	--	--	1,440	DRIVING LANE SHOULDER	
1246+06	-	109+17	LT	"NB"	40	--	--	--	--	--	--	--	--	--	70	--	--	--	--	MAINTENANCE CROSSOVER	
			LT&RT	"A"	140	--	--	210	--	210	--	--	--	--	--	--	--	--	--	600	NORTHBOUND EXIT RAMP
212+99	-	222+42	LT&RT	"B"	130	--	--	210	--	210	--	--	--	--	--	--	--	--	--	NORTHBOUND ENTRANCE RAMP	
PROJECT						--	0.5	0.5	--	--	--	--	--	0.5	0.5	--	360	70	--		
TOTALS						13,090	0.5	0.5	10,660	8,780	10,660	9,090	9,090	0.5	0.5	3,630	360	70	53,250		

NOTES
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE
UNDISTRIBUTED ASPHALTIC SURFACE TEMPORARY QUANTITY USED FOR FILLING RUMBLE STRIPS.
UNDISTRIBUTED ASPHALTIC SURFACE PATCHING QUANTITY USED FOR ANY REPAIRS REQUIRED AFTER MILLING IS COMPLETE AND PATCHING IN FRONT OF CURB AND GUTTER REPAIRS.
** DENSITY ACCEPTANCE: INCENTIVE DENSITY PWL HMA PVT 460.2005 FOR DRIVING LANE AND PASSING LANE; INSIDE SHOULDER QTY ACCEPTANCE TESTING IS BY DEPT, NOT ELIGIBLE FOR DENSITY INCENTIVE.
*** MIXTURE ACCEPTANCE: INCENTIVE AIR VOIDS HMA PVT 460.2010 FOR DRIVING LANE, PASSING LANE, AND INSIDE SHOULDER.
**** DENSITY ACCEPTANCE: INCENTIVE DENSITY HMA PAVEMENT 460.2000; MIXTURE ACCEPTANCE: QMP PER STD SPEC 460

PROJECT NO: 1192-00-72

HWY: USH 53

COUNTY: CHIPPEWA

MISCELLANEOUS QUANTITIES

SHEET

E

CULVERT PIPE ITEMS

CATEGORY	STATION	OFFSET	ALIGNMENT	204.0180*	520.8700	633.5200
				REMOVING DELINEATORS AND MARKERS EACH	CLEANING CULVERT PIPES EACH	MARKERS CULVERT END EACH
0010	1025+34	RT	"NB"	2	2	2
	1069+05	RT	"NB"	2	1	2
	1079+06	RT	"NB"	2	1	2
	1090+08	RT	"NB"	2	1	2
	1104+53	RT	"NB"	2	1	2
	1119+09	RT	"NB"	2	1	2
	1137+06	RT	"NB"	2	1	2
	1151+06	RT	"NB"	2	1	2
	1156+05	RT	"NB"	2	1	2
	1180+17	RT	"NB"	2	1	2
	1183+03	RT	"NB"	2	1	2
	1190+34	RT	"NB"	2	1	2
	1194+05	RT	"NB"	2	1	2
	1205+30	RT	"NB"	2	1	2
	1227+03	RT	"NB"	2	1	2
	1246+41	LT	"NB"	--	1	--
	1250+31	RT	"NB"	2	1	2
	1259+58	RT	"NB"	2	1	2
	1275+46	RT	"NB"	2	1	2
	110+64	RT	"A"	1	1	1
	202+76	RT	"B"	2	1	2
TOTALS				39	22	39

*ADDITIONAL QUANTITIES SHOWN ELSEWHERE

WATER

CATEGORY	STAGE	LOCATION	624.0100 MGAL
0010	ALL	PROJECT-BASE COMPACTION	9
TOTAL			9

FIELD OFFICE

CATEGORY	LOCATION	642.5001 FIELD OFFICE TYPE B EACH
0010	PROJECT	0.5
TOTAL		0.5

GUARDRAIL ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	614.0400 ADJUSTING STEEL PLATE BEAM GUARD LF
					LF
0010	1123+18	-	1125+68	LT	250
TOTAL					250

REMOVING AND MOVING SIGNS

CATEGORY	LOCATION	634.0616 POSTS WOOD 4X6-INCH X 16-FT EACH	638.2102 MOVING SIGNS TYPE II EACH	638.3000 REMOVING SMALL SIGN SUPPORTS EACH	638.4000 MOVING SMALL SIGN SUPPORTS EACH
		EACH	EACH	EACH	EACH
0010	UNDISTRIBUTED	5	5	5	5
TOTALS		5	5	5	5

CONSTRUCTION STAKING

CATEGORY	LOCATION	650.8000 CONSTRUCTION STAKING RESURFACING REFERENCE LF	650.9910.01 CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1192-00-72) LS
		LF	LS
0010	PROJECT	28,607	1
TOTALS		28,607	1

3

DELINEATOR REFLECTOR ITEMS									
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	633.0100	633.0500		COMMENTS
						DELINEATOR	DELINEATOR		
						POSTS STEEL	REFLECTORS		
						EACH	YELLOW	WHITE	
						EACH	EACH	EACH	
0010	1013+59	-	1070+00	LT&RT	"NB"	14	--	14	DRIVING LANE SHOULDER
			1045+29	LT	"NB"	1	2	--	MAINTENANCE CROSSOVER
	1070+00	-	1126+09	LT&RT	"NB"	14	--	14	DRIVING LANE SHOULDER
	1127+82	-	1185+00	LT&RT	"NB"	14	--	14	DRIVING LANE SHOULDER
			1161+10	LT	"NB"	1	2	--	MAINTENANCE CROSSOVER
	1185+00	-	1246+00	LT&RT	"NB"	15	--	15	DRIVING LANE SHOULDER
	1246+00	-	1299+66	LT&RT	"NB"	13	--	13	DRIVING LANE SHOULDER
			1246+06	LT	"NB"	1	2	--	MAINTENANCE CROSSOVER
	100+00	-	119+53	LT&RT	"A"	9	--	9	NORTHBOUND EXIT RAMP
	200+00	-	222+40	LT&RT	"B"	9	--	9	NORTHBOUND ENTRANCE RAMP
	TOTALS					92	6	89	
								95	

TEMPORARY PAVEMENT MARKING ITEMS									
CATEGORY	STAGE	STATION	TO	STATION	LF	646.9000	649.0150		649.0250
						REMOVING	TEMPORARY PAVEMENT MARKING	TEMPORARY PAVEMENT MARKING	TEMPORARY PAVEMENT MARKING
						PAVEMENT	REMOVABLE TAPE 4-INCH	REMOVABLE TAPE 4-INCH	REMOVABLE TAPE 8-INCH
						MARKINGS	SOLID YELLOW	SOLID WHITE	SOLID WHITE
							LF	LF	LF
0010									
	1	997+89	-	1005+59	200	--	--	720	--
	1	1248+87	-	1250+87	100	--	--	200	--
	1	1259+10	-	1261+10	--	--	--	--	450
	1	1292+71	-	1301+71	250	200	375	250	
	2	997+89	-	1005+59	--	720	--	--	--
	3	997+89	-	1005+59	--	--	--	720	--
	3	1248+87	-	1250+87	--	--	--	200	--
	3	1259+10	-	1261+10	--	--	--	--	450
	3	1292+71	-	1301+71	--	200	375	250	
	4	997+89	-	1005+59	--	720	--	--	--
	TOTALS					550	1,840	2,590	1,400
							4,430		

3

TRAFFIC CONTROL ITEMS																	
		643.0300				643.0420		643.0705		643.0715		643.0800		643.0900		643.1050	
		STAGE		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL		TRAFFIC CONTROL	
		DURATION		DRUMS		BARRICADES		WARNING LIGHTS		WARNING LIGHTS		ARROW		SIGNS		CONTROL	
		DAYS		TYPE III		TYPE A		TYPE C		BOARDS				SIGNALS		SIGNALS PCMS	
CATEGORY	STAGE	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY
0010	PRIOR TO CONSTRUCTION	7	--	--	--	--	--	--	--	--	--	--	--	--	--	1	7
	1	2	385	770	31	62	62	124	35	70	2	4	49	98	--	--	--
	2	31	365	11,315	29	899	58	1,798	42	1,302	2	62	45	1,395	--	--	--
	3	49	385	18,865	31	1,519	62	3,038	35	1,715	2	98	49	2,401	--	--	--
	4	6	365	2,190	29	174	58	348	42	252	2	12	45	270	--	--	--
	M1	5	84	420	4	20	8	40	--	--	--	--	4	20	1	5	5
	M2	5	84	420	4	20	8	40	--	--	--	--	4	20	1	5	5
	TOTALS		105	33,980	2,694	5,388	3,339	176	4,204	17							

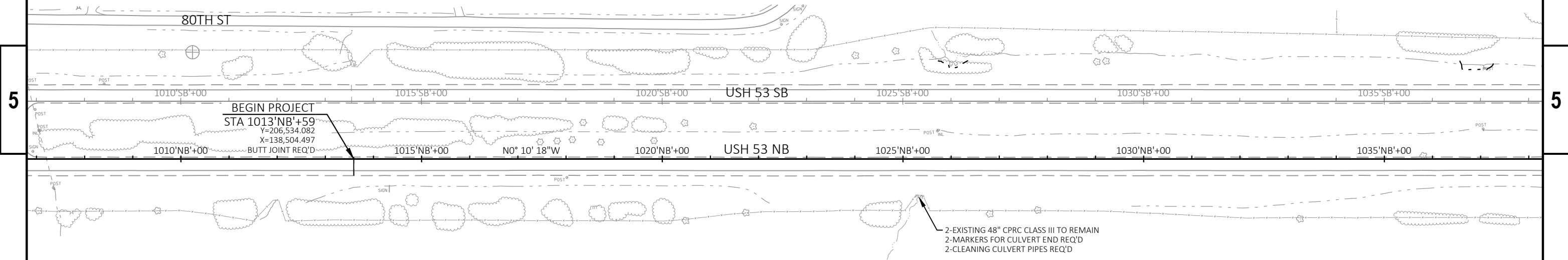
TRAFFIC CONTROL COVERING SIGNS							
CATEGORY	STAGE	STATION	OFFSET	NUMBER OF CYCLES	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II		COMMENTS
					NO.	EACH	
0010	1	1263+69	RT	1	1	1	EXIT SIGN
	3	1263+69	RT	1	1	1	EXIT SIGN
TOTAL						2	

LONG LINE PAVEMENT MARKING ITEMS															
CATEGORY	STATION	TO	STATION	ALIGNMENT	646.1020			646.1040		646.1555		646.3555		646.7220	
					MARKING LINE EPOXY 4-INCH			MARKING LINE GROOVED WET REF EPOXY 4-INCH		MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH		MARKING LINE GROOVED CONTRAST PERMANENT TAPE 8-INCH		MARKING CHEVRON EPOXY 24-INCH	
					SOLID YELLOW	SOLID WHITE	12.5' LINE 37.5' SKIP (WHITE)	SOLID YELLOW	SOLID WHITE	12.5' LINE 37.5' SKIP (WH ITE)	3' LINE 9' SKIP (WHITE)	SOLID WHITE	SOLID WHITE		
					LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	
0010	1013+59	-	1070+00	"NB"	--	--	--	5,641	5,641	2,180	--	--	--	--	
	1070+00	-	1126+09	"NB"	--	--	--	5,609	5,609	1,400	--	--	--	--	
	1127+82	-	1185+00	"NB"	175	175	50	5,717	5,717	1,425	--	--	--	--	
	1185+00	-	1246+00	"NB"	--	--	--	6,100	6,100	1,525	--	--	--	--	
	1246+00	-	1299+66	"NB"	--	--	--	5,366	3,291	1,342	--	--	--	--	
	100+00	-	109+17	"A"	--	--	--	--	917	--	168	530	--	110	
	212+99	-	222+42	"B"	--	--	--	--	942	--	--	940	--	--	
TOTALS					175	175	50	28,433	28,217	7,872	168	1,470	--	110	
					400			56,650		8,040					

TRAFFIC CONTROL			
CATEGORY	STAGE	LOCATION	643.5000 TRAFFIC CONTROL EACH
0010	ALL	PROJECT	0.5
TOTAL			0.5

LEGEND

DELINEATED WETLAND BOUNDARY



PROJECT NO: 1192-00-72

HWY: USH 53

COUNTY: CHIPPEWA

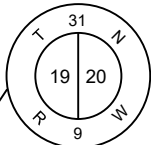
PLAN

SHEET

E

LEGEND

DELINEATED WETLAND BOUNDARY

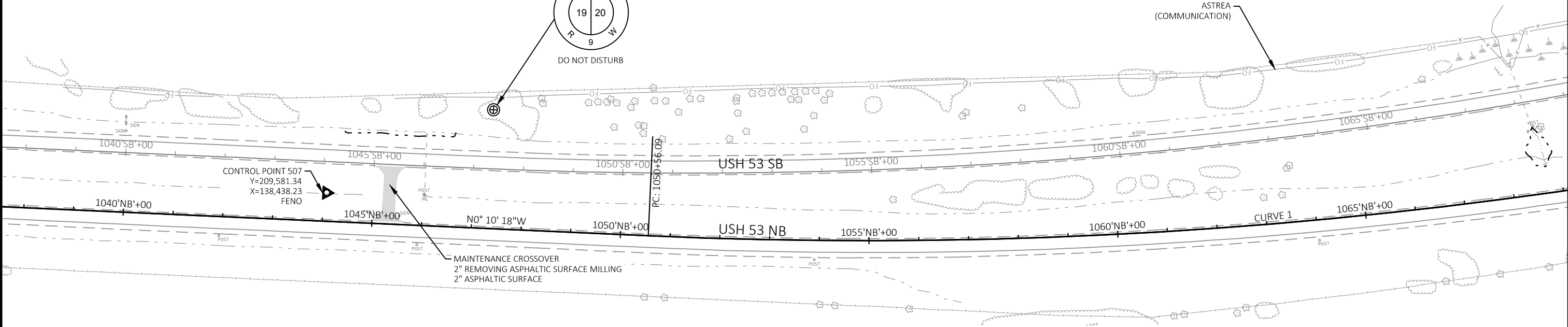


DO NOT DISTURB

ASTREA
(COMMUNICATION)

5

5



CURVE 1 DATA ('NB')
PI STA = 1095+08.12
Y = 214683.16
X = 138480.09
PC STA = 1050+56.09
Y = 210231.16
X = 138493.43
PT STA = 1134+16.01
Y = 217607.60
X = 135123.28
DELTA = 48°45'58"
D = 0°35'00"
T = 4452.02'
L = 8359.92'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94

PROJECT NO: 1192-00-72

HWY: USH 53

COUNTY: CHIPPEWA

PLAN

SHEET

E

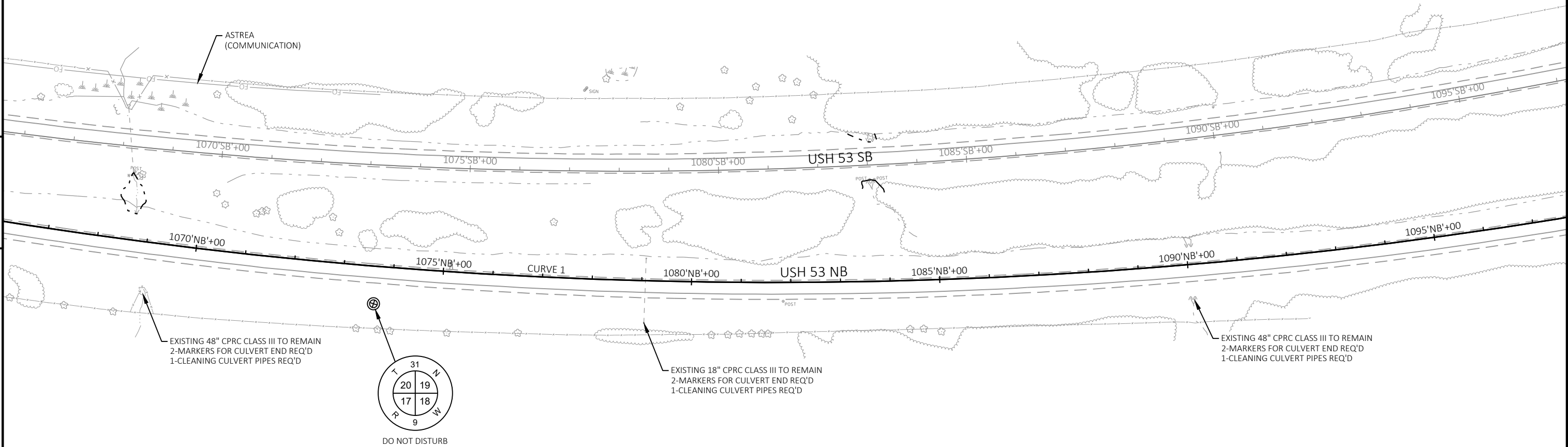
LEGEND

DELINEATED WETLAND BOUNDARY



5

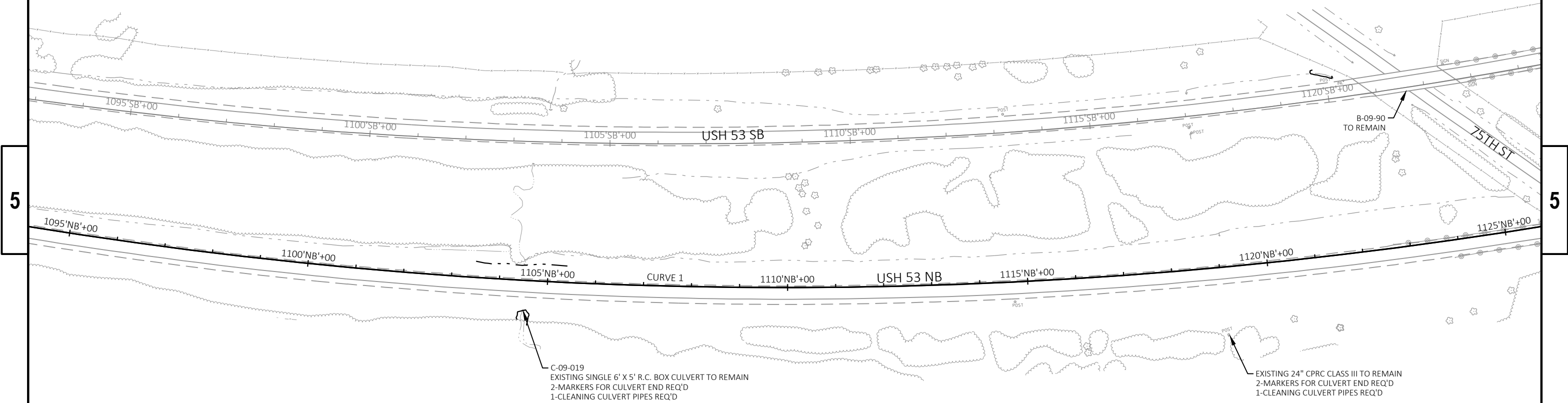
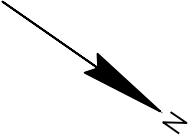
5



CURVE 1 DATA ('NB')
PI STA = 1095+08.12
Y = 214683.16
X = 138480.09
PC STA = 1050+56.09
Y = 210231.16
X = 138493.43
PT STA = 1134+16.01
Y = 217607.60
X = 135123.28
DELTA = 48°45'58"
D = 0°35'00"
T = 4452.02'
L = 8359.92'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94

LEGEND

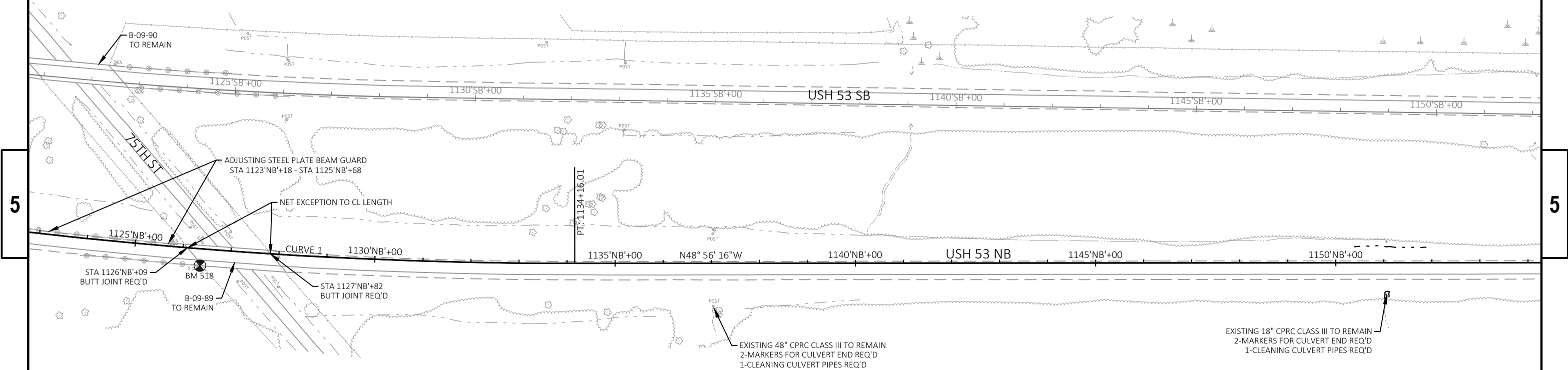
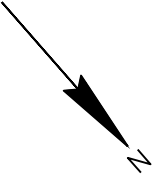
DELINEATED WETLAND BOUNDARY



CURVE 1 DATA ('NB')
PI STA = 1095+08.12
Y = 214683.16
X = 138480.09
PC STA = 1050+56.09
Y=210231.16
X=138493.43
PT STA = 1134+16.01
Y=217607.60
X=135123.28
DELTA = 48°45'58"
D = 0°35'00"
T = 4452.02'
L = 8359.92'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94

LEGEND

DELINEATED WETLAND BOUNDARY



CURVE 1 DATA ('NB')

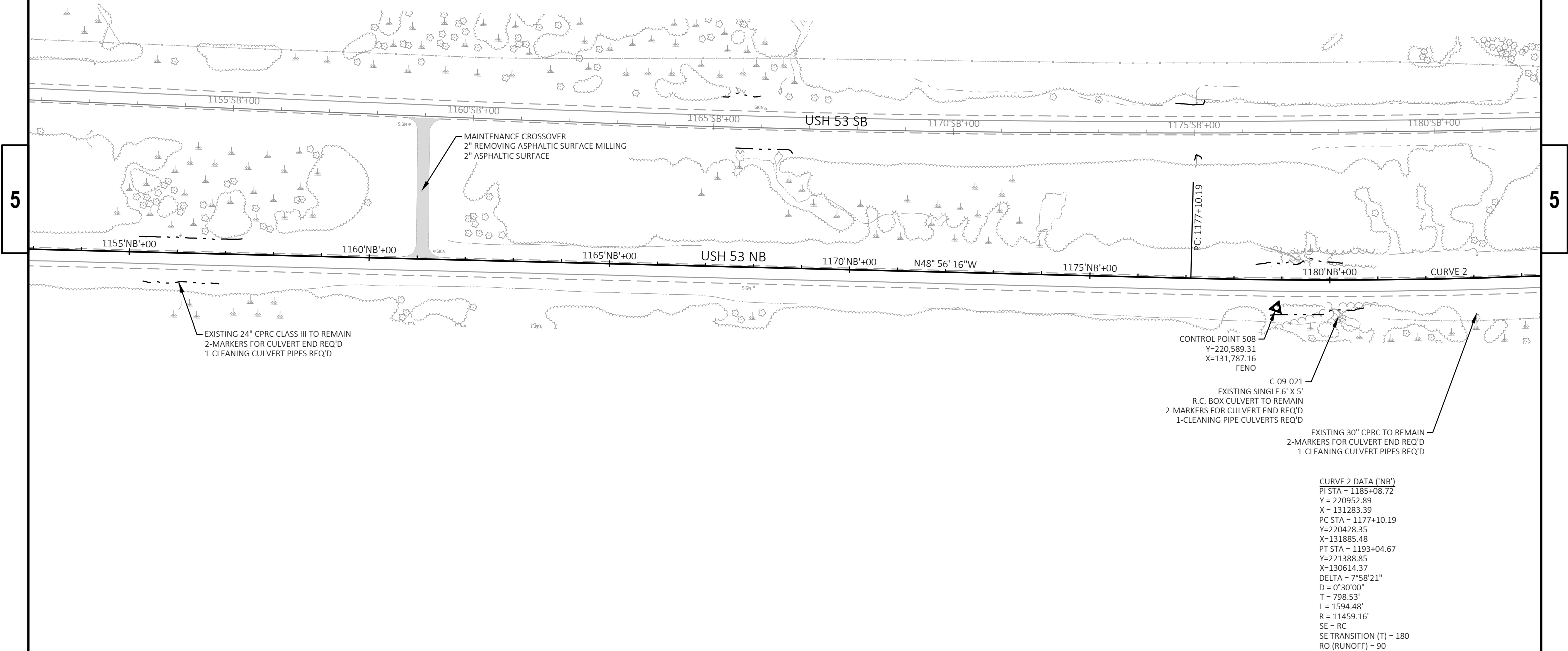
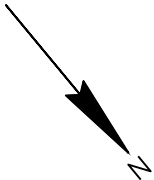
PI STA = 1095+08.12
Y = 214683.16
X = 138480.09
PC STA = 1050+56.09
Y = 210231.16
X = 138493.43
PT STA = 1134+16.01
Y = 217607.60
X = 135123.28
DELTA = 48°45'58"
D = 0°35'00"
T = 4452.02'
L = 8359.92'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94

BENCH MARKS

NO.	STATION / OFFSET	DESCRIPTION	ELEV.
518	1126'NB'+37.65, 35.29' RT	ALUMINUM DISK	1107.92

LEGEND

DELINEATED WETLAND BOUNDARY



PROJECT NO: 1192-00-72

HWY: USH 53

COUNTY: CHIPPEWA

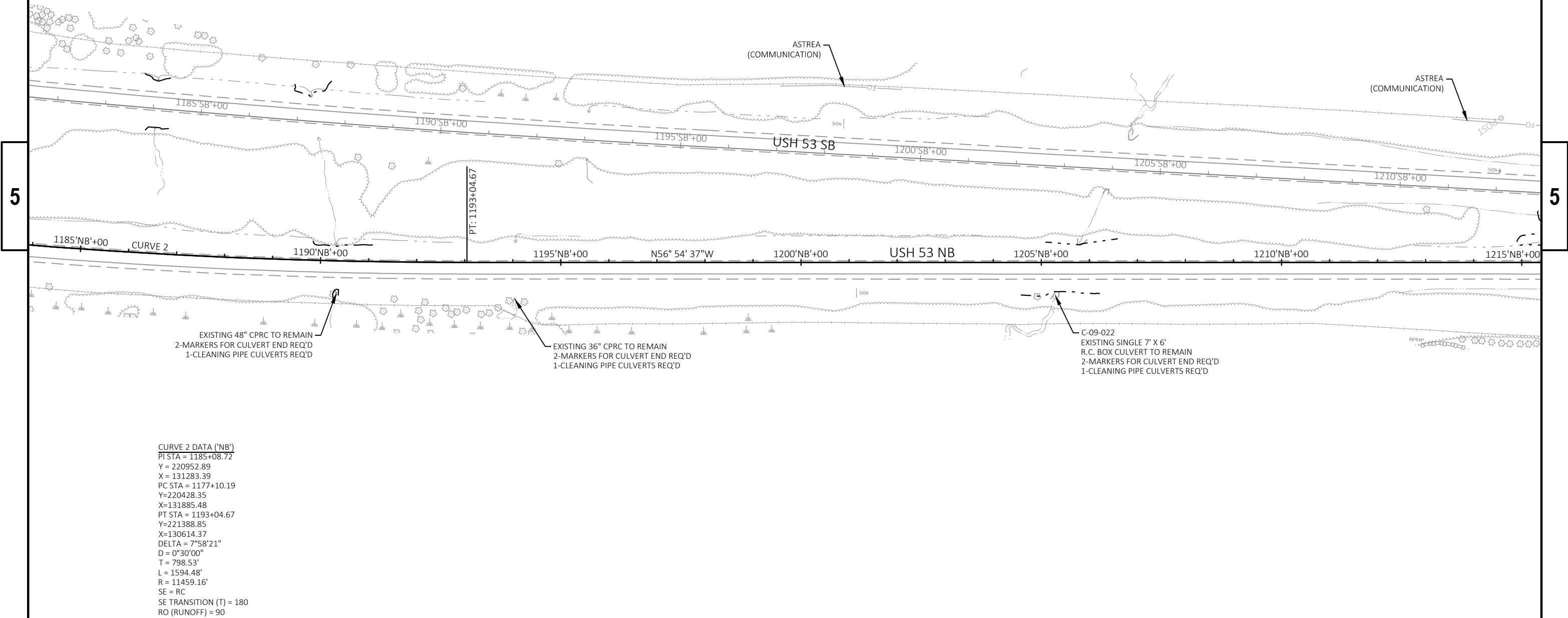
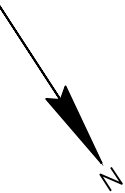
PLAN

SHEET

E

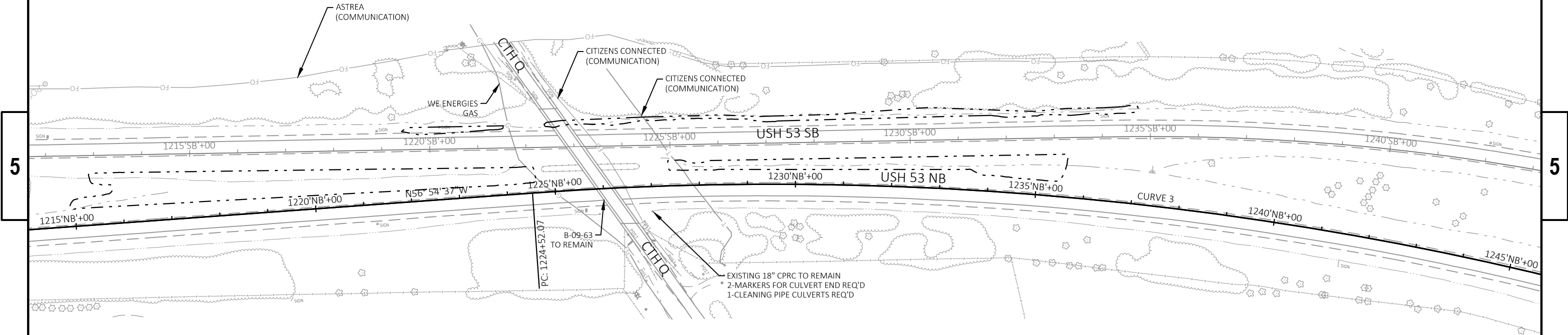
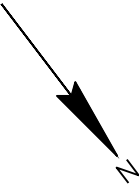
LEGEND

DELINEATED WETLAND BOUNDARY



LEGEND

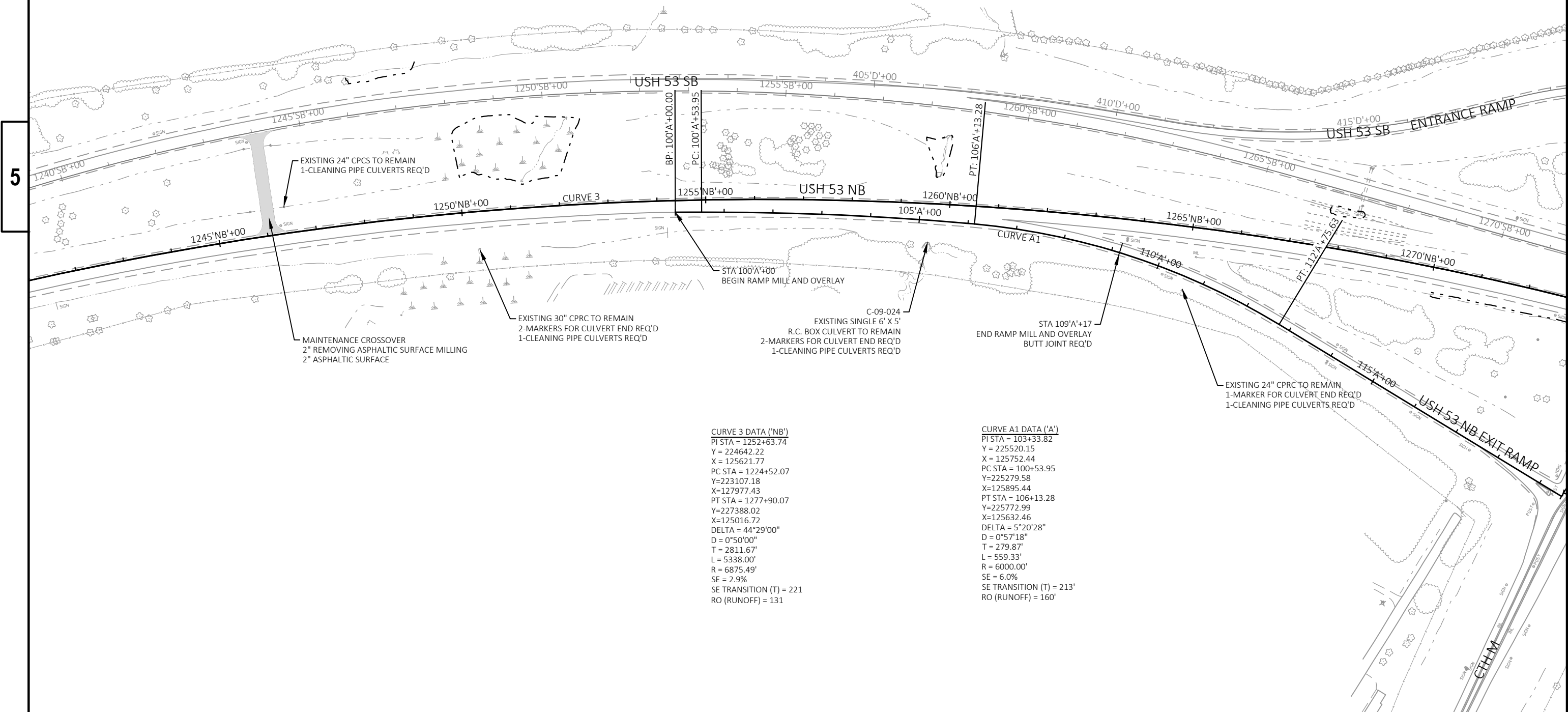
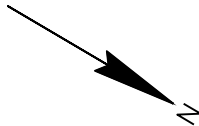
DELINEATED WETLAND BOUNDARY



CURVE 3 DATA ('NB')
PI STA = 1252+63.74
Y = 224642.22
X = 125621.77
PC STA = 1224+52.07
Y=223107.18
X=127977.43
PT STA = 1277+90.07
Y=227388.02
X=125016.72
DELTA = 44°29'00"
D = 0°50'00"
T = 2811.67'
L = 5338.00'
R = 6875.49'
SE = 2.9%
SE TRANSITION (T) = 221
RO (RUNOFF) = 131

LEGEND

DELINEATED WETLAND BOUNDARY



PROJECT NO: 1192-00-72

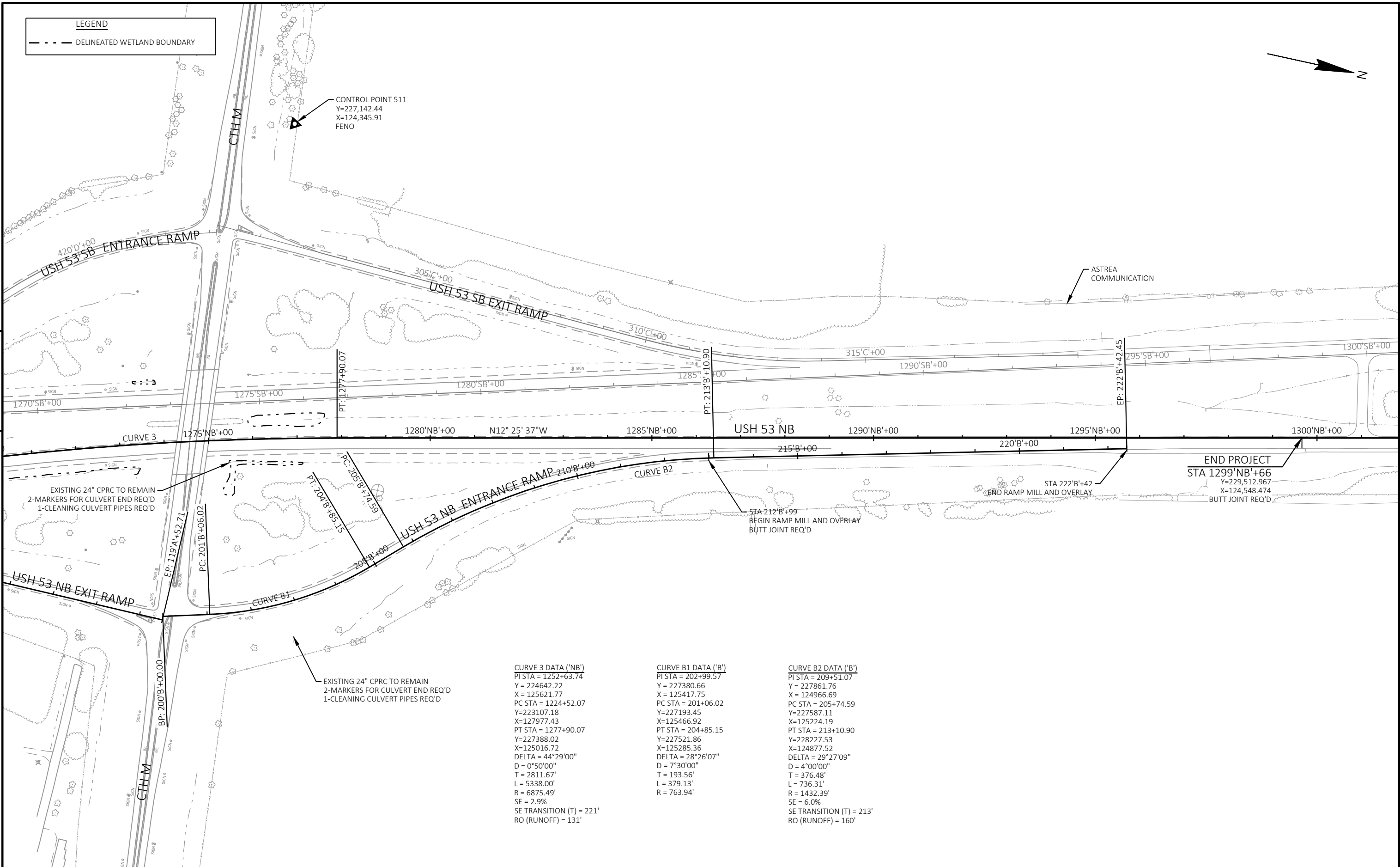
HWY: USH 53

COUNTY: CHIPPEWA

PLAN

SHEET

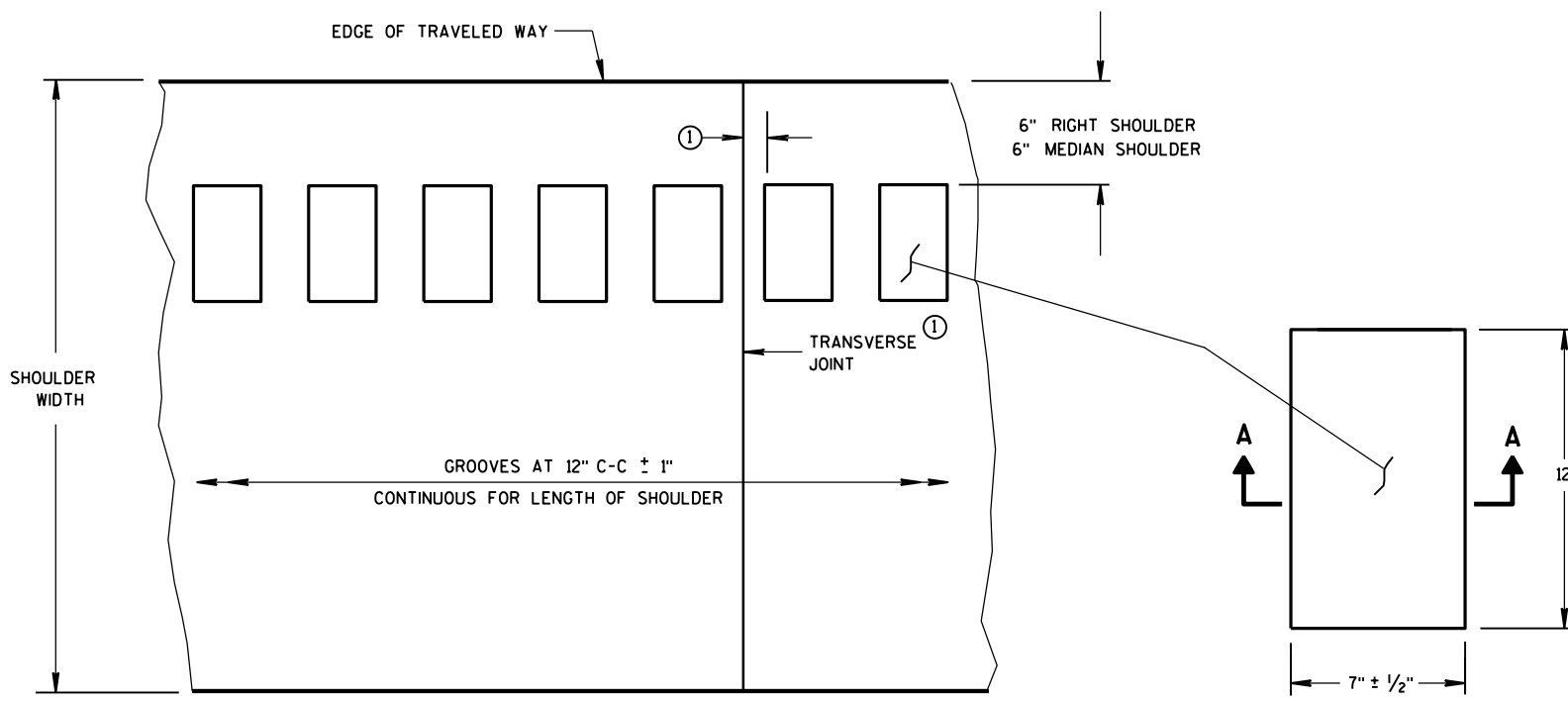
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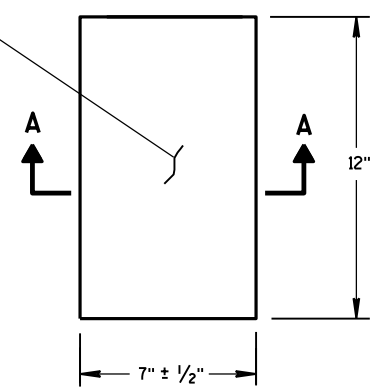
PROJECT NO: 1192-00-72	HWY: USH 53	COUNTY: CHIPPEWA	PLAN	SHEET	E
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Standard Detail Drawing List

13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13C19-01	HMA LONGI TUDI NAL JOI NTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRI VEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
14B20-11A	STEEL THRI E BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11E	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-11F	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRI E BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THRI E BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-07F	ADVANCED WIDTH RESTRI CTION SIGNI NG
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-19A	LONGI TUDI NAL MARKI NG (MAINLI NE)
15C11-07B	CHANNELI ZI NG DEVI CES DRUMS, CONES, BARRICADES AND VERTI CAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGI NG OPERATI ON
15C19-06C	MOVI NG PAVEMENT MARKI NG OPERATI ON MULTI -LANE DI VI DE D ROADWAY
15C31-03A	PAVEMENT MARKI NG (RAMPS AND GORE S)
15D12-07B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTI ON
15D15-05A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHI N LANE CLOSURE
15D15-05C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHI N LANE CLOSURE
15D15-05D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHI N LANE CLOSURE
15D15-05E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHI N LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DI VI DE D ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTI NG
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNI NG



PLAN VIEW
SHOULDER WITH GROOVES



PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

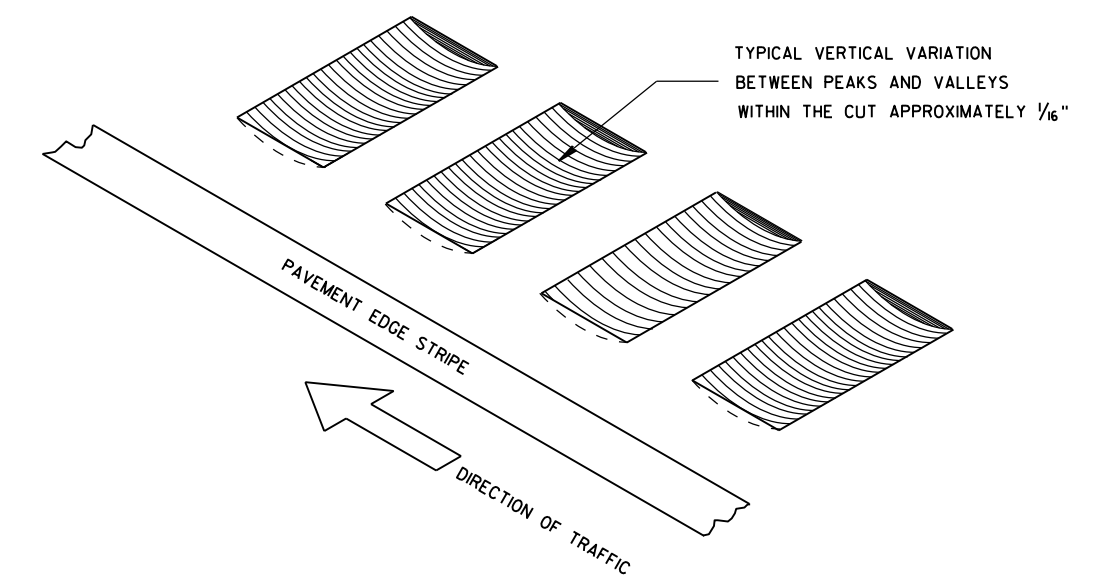
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

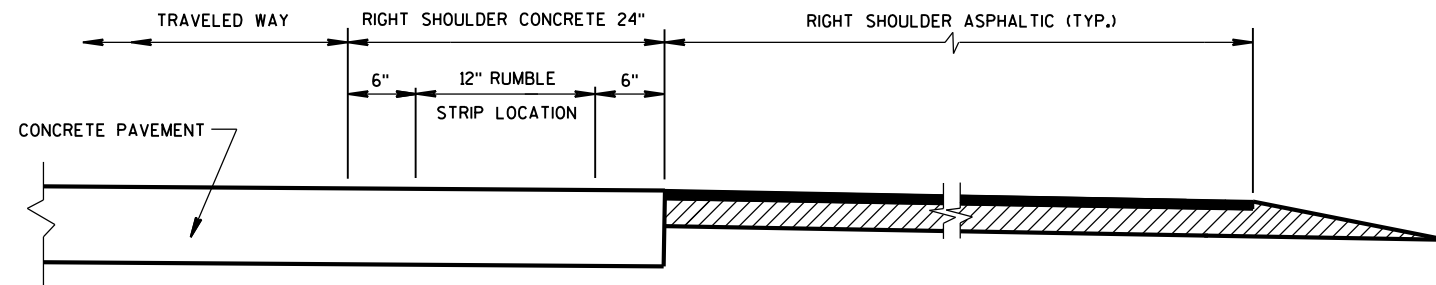
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

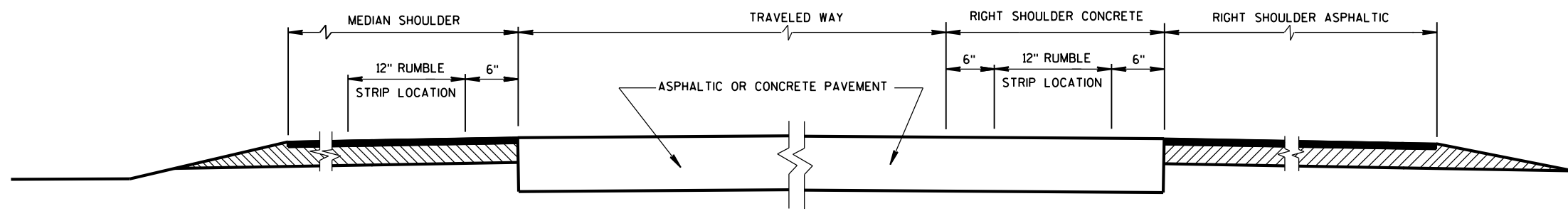
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



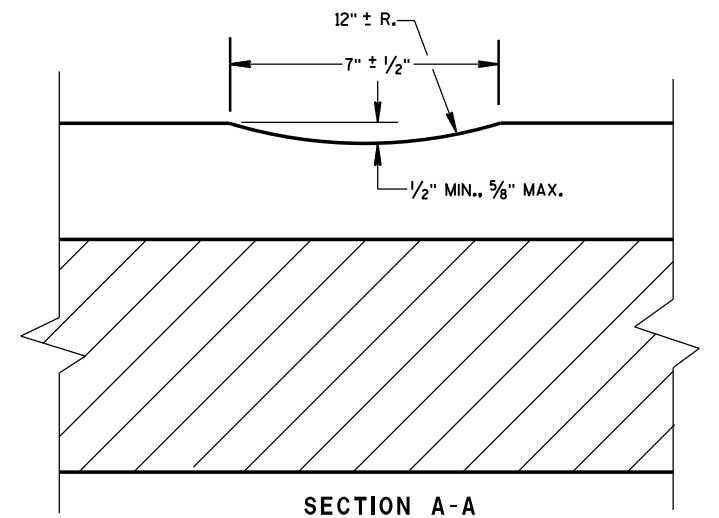
ISOMETRIC



SECTION VIEW
(CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



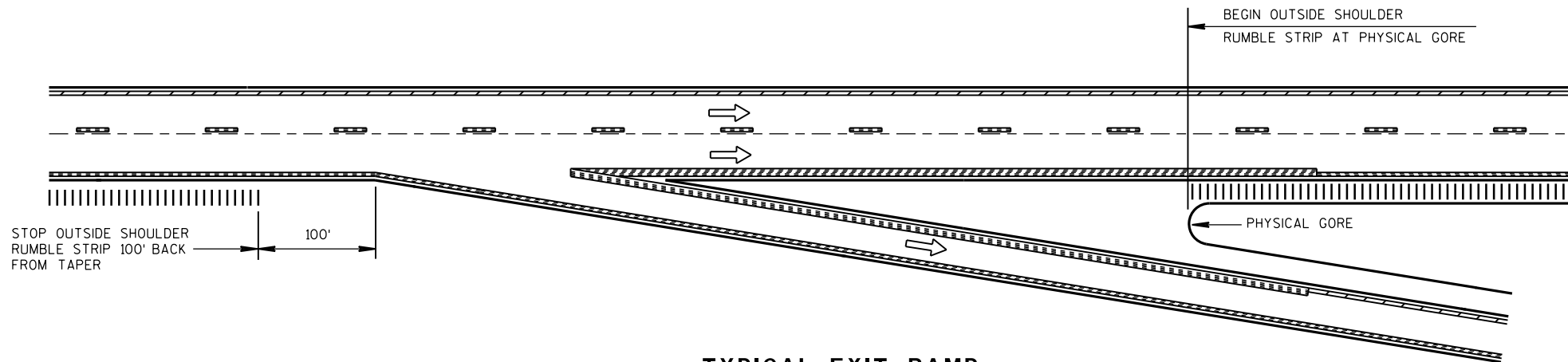
SECTION VIEW
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS
IN RURAL DIVIDED HIGHWAYS
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



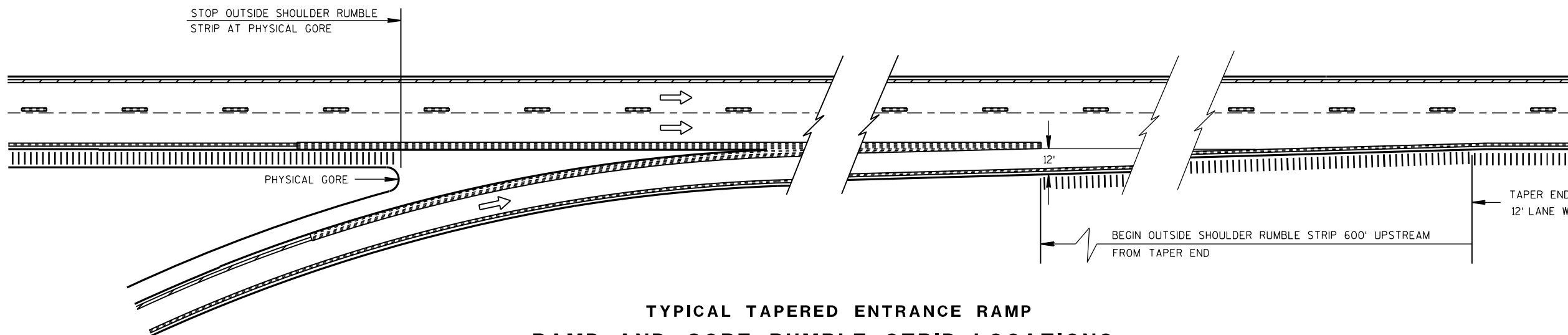
TYPICAL EXIT RAMP

NOTES:

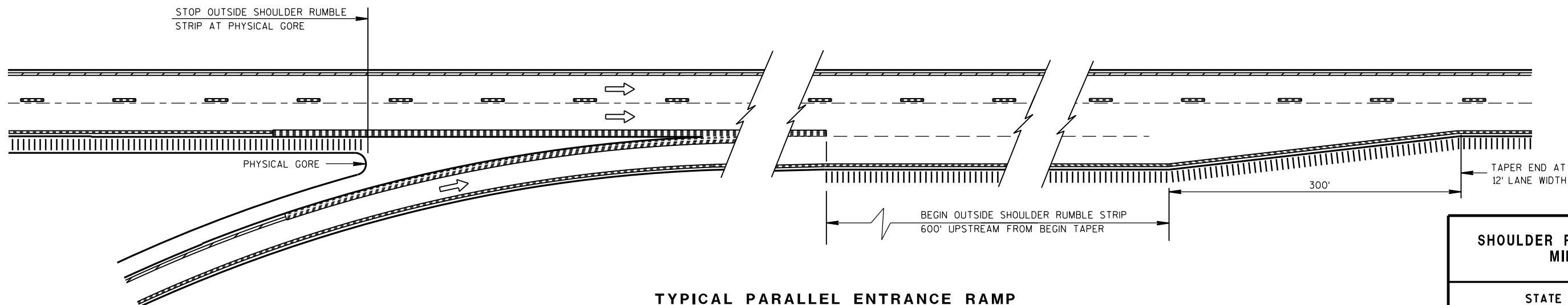
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,
MILLING**

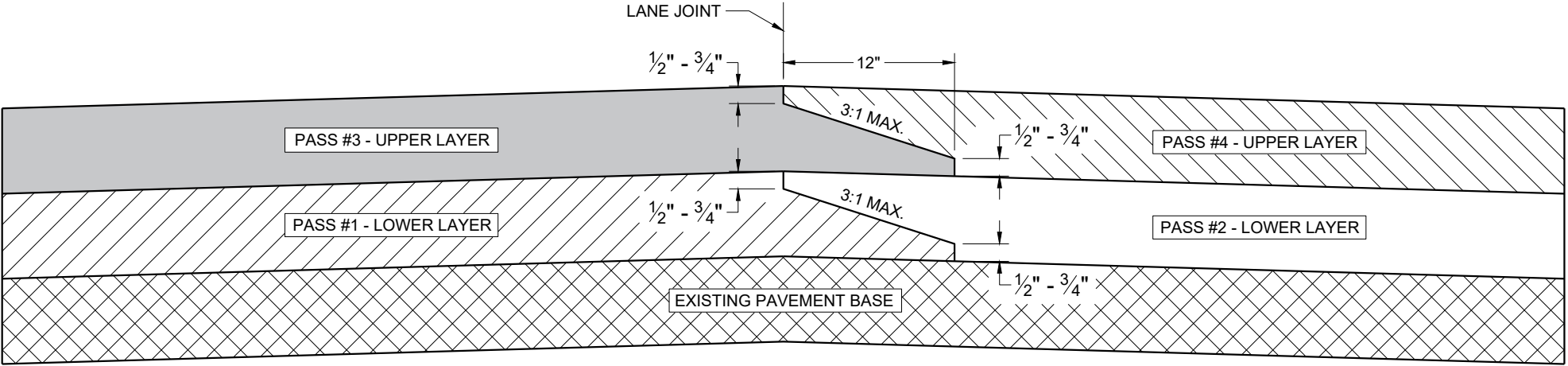
**STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION**

APPROVED
12/17/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

CONFORM TO STANDARD SPECIFICATION 450.3.2.8



TYPICAL PAVEMENT CROSS SECTION
OF NOTCHED WEDGE LONGITUDINAL JOINTS

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

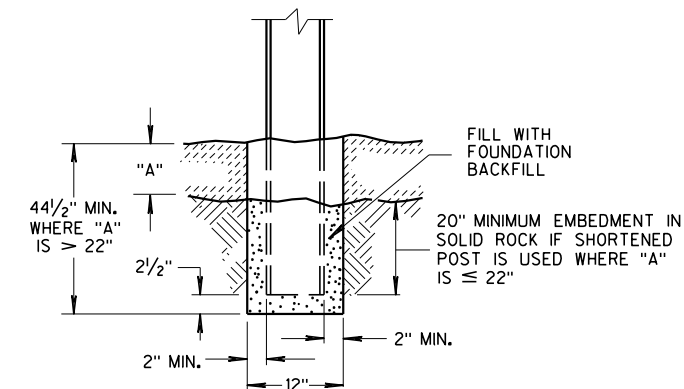
APPROVED
May 2019 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER

FHWA

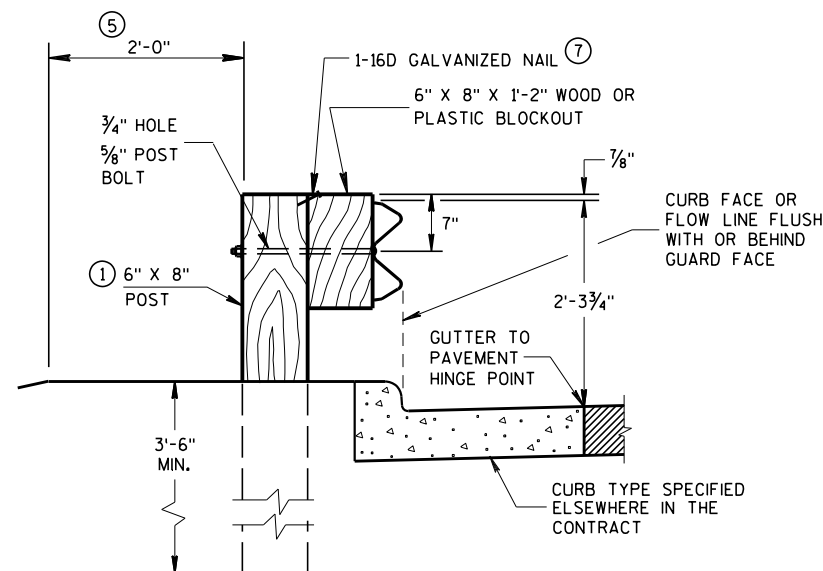
GENERAL NOTES

- W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS. APPROVED PLASTIC BLOCKOUT DESIGNS MAY VARY FROM THIS TYPICAL DETAIL WHEN USED IN CONJUNCTION WITH STEEL POSTS. DO NOT MIX STEEL POSTS AND WOOD POSTS IN A SINGLE INSTALLATION.
- USE STRUCTURAL STEEL POSTS CONFORMING TO ASTM A 36. GALVANIZED POSTS ACCORDING TO AASHTO M 111. EITHER SET THE POSTS IN DRILLED HOLES OR DRIVE TO GRADE. REMOVE MUSHROOMING CAUSED BY DRIVING AND REPAIR DAMAGED SPELTER COATING ON GALVANIZED POSTS.
- INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.
- USE EITHER WOOD OR APPROVED PLASTIC BLOCKOUTS ON WOOD POSTS.
- IF THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING, W BEAM (LHW).
- IF ROCK IS ENCOUNTERED DURING EXCAVATION, THE ENGINEER MAY APPROVE USING A 12 INCH DIAMETER POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK. PLACE GRANULAR MATERIAL IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2 INCHES DEEP. CUT THE POSTS TO LENGTH AND PLACE IN THE HOLE. BACKFILL WITH MATERIAL EXCAVATED FROM THE HOLE AND COMPACT ADEQUATELY.
- WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

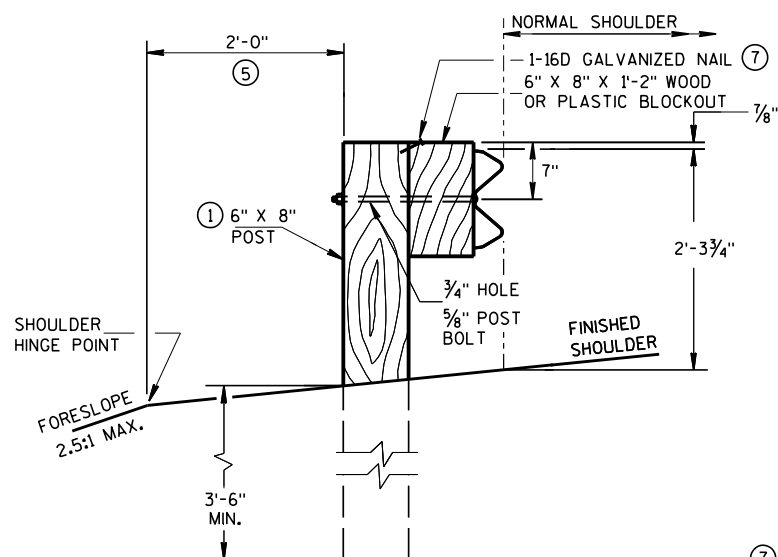
INSTALL BEAM GUARD SECTIONS AND ALL NECESSARY HARDWARE ACCORDING TO THE APPLICABLE PLAN AND CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCES EXCEPT WHERE ALLOWABLE TOLERANCES ARE SHOWN.



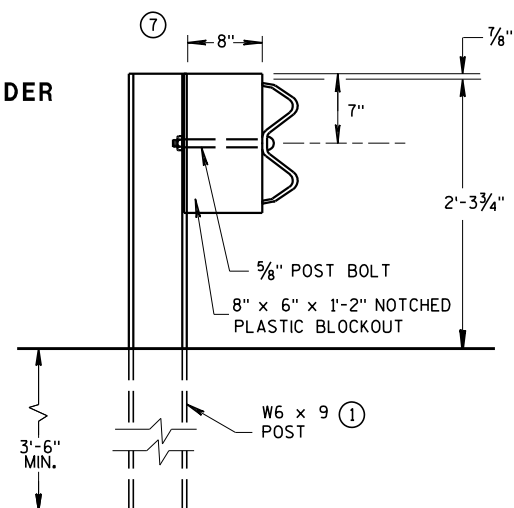
END VIEW
SETTING STEEL OR WOOD POST IN ROCK ⑥



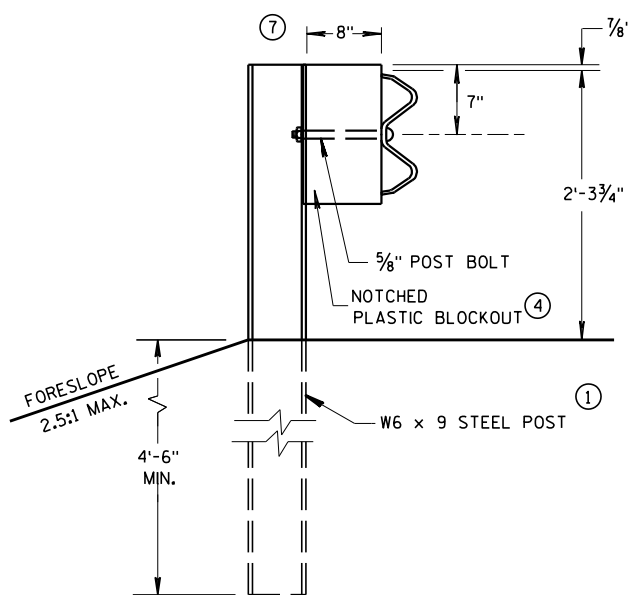
END VIEW
LOCATED ALONG A CURBED ROADWAY



END VIEW
LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION

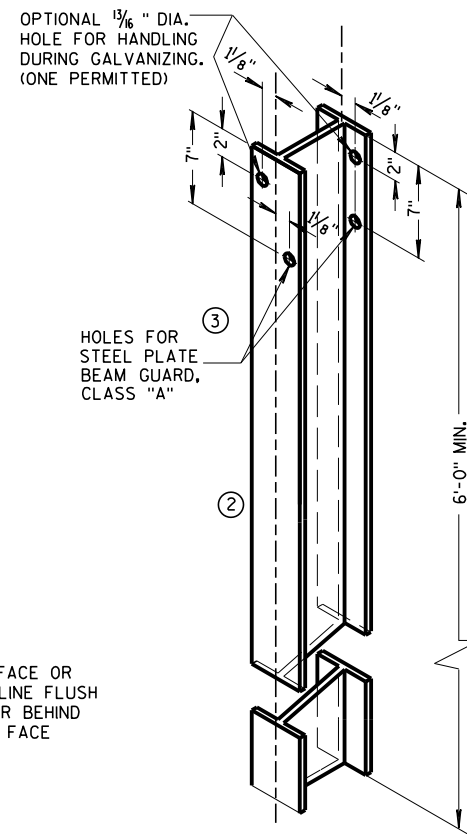


END VIEW
STEEL POST & NOTCHED
PLASTIC BLOCKOUT ALTERNATIVE
STANDARD INSTALLATION



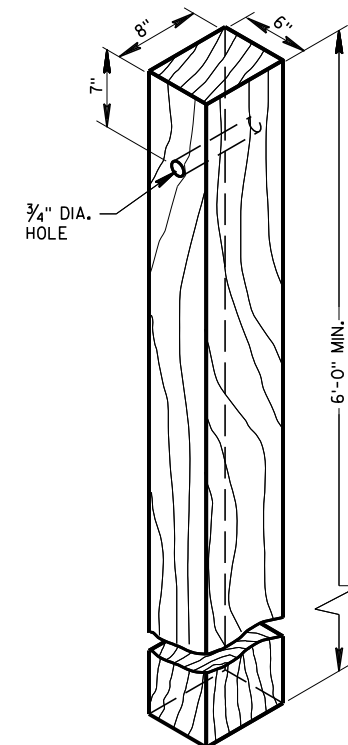
END VIEW
LONGER POST AT HALF
POST SPACING W BEAM
(LHW)

TYPICAL INSTALLATION OF STEEL PLATE BEAM GUARD

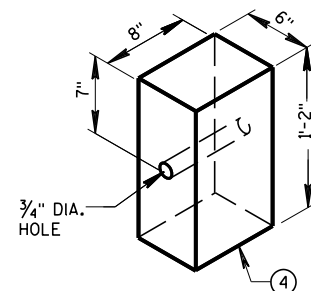


STEEL POST &
HOLE PUNCHING DETAIL
(W6 X 9) ①

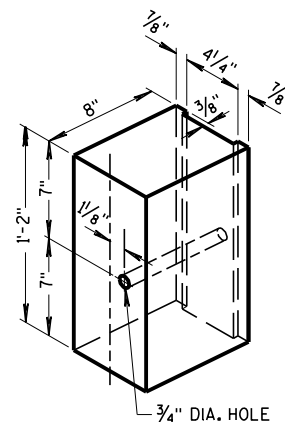
ALL HOLES 1/8" DIAMETER EXCEPT AS NOTED



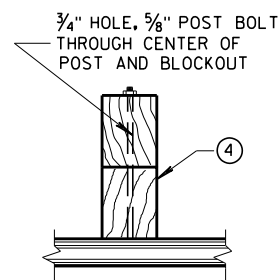
WOOD POST
(6" X 8") NOMINAL



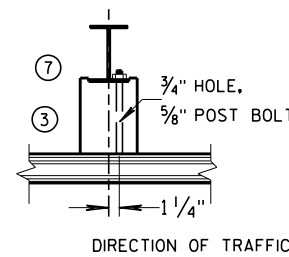
WOOD OR PLASTIC
BLOCKOUT FOR
WOOD POSTS



TYPICAL NOTCHED
PLASTIC BLOCKOUT
FOR STEEL POSTS ①



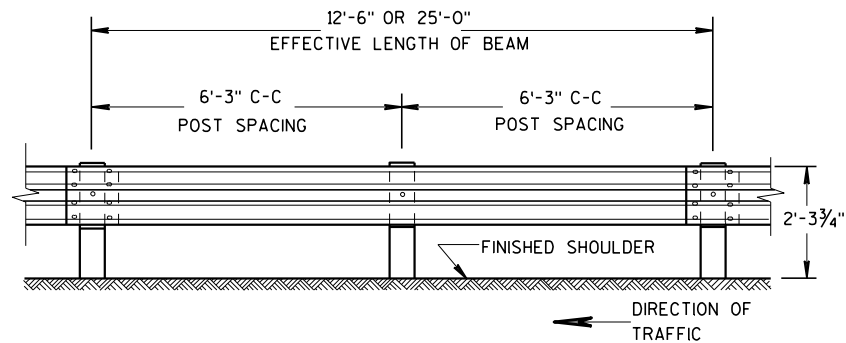
PLAN VIEW
WOOD POST, BLOCKOUT & BEAM



PLAN VIEW
STEEL POST, NOTCHED
PLASTIC BLOCKOUT & BEAM

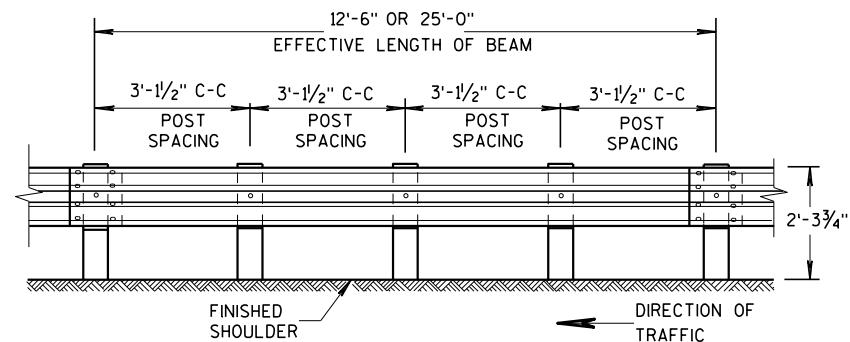
STEEL PLATE BEAM GUARD,
CLASS "A"
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



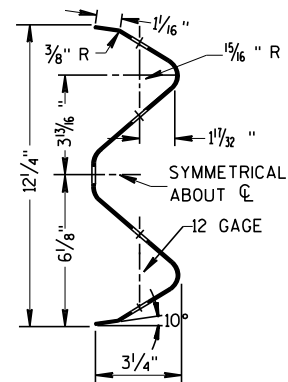
FRONT VIEW

POST SPACING STANDARD INSTALLATION

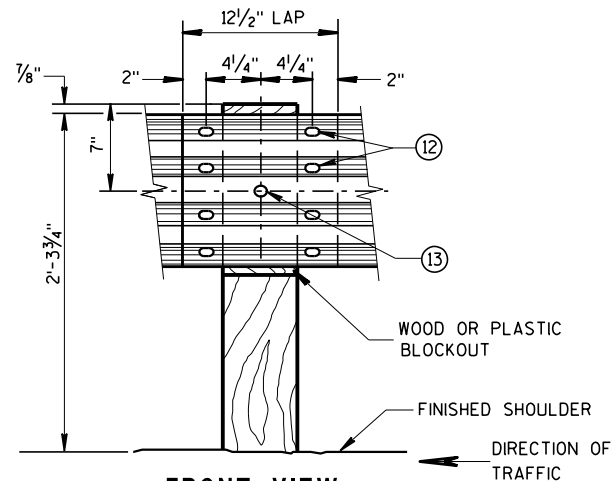


FRONT VIEW

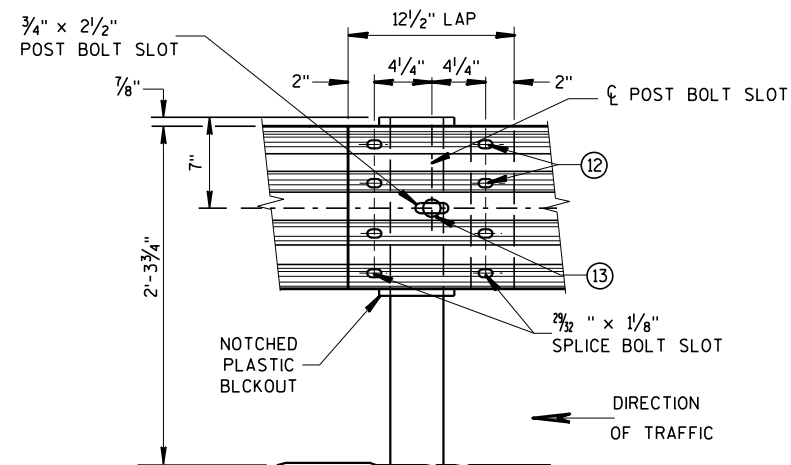
POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)



SECTION THRU W BEAM



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



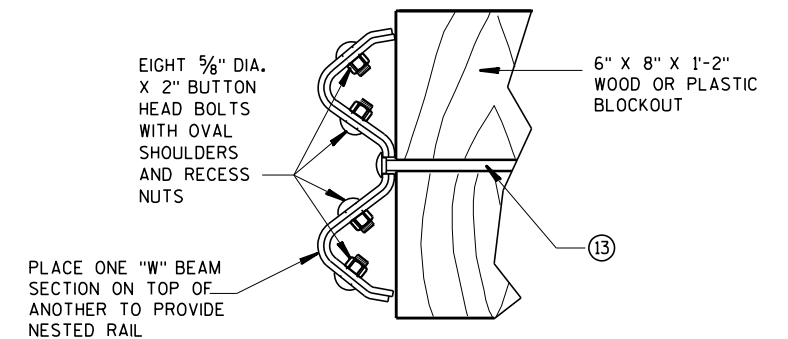
FRONT VIEW
BEAM SPLICE AT STEEL POST

TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD

GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

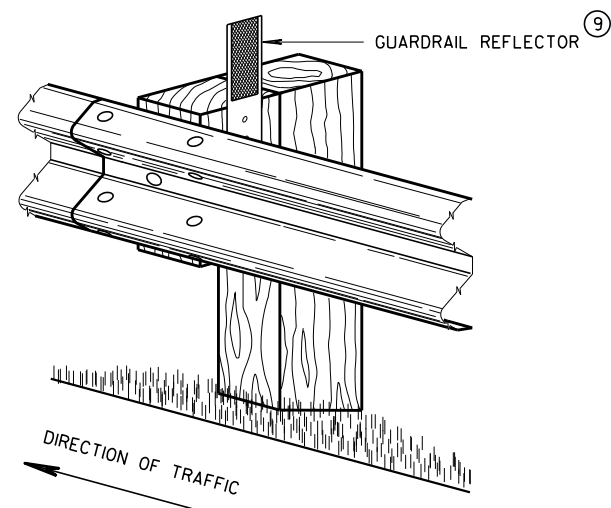
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



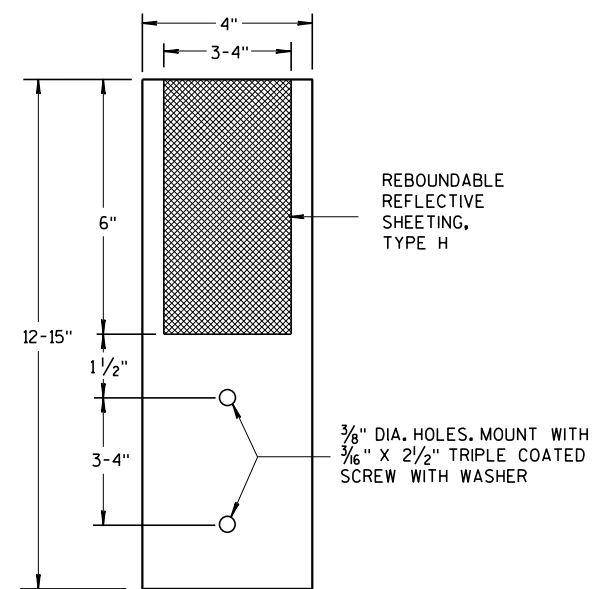
NESTED W BEAM (NW)

USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)

* USE DOUBLE SIDED WHITE GUADRAIL REFLECTORS ON ROADWAYS WITH BI-DIRECTIONAL TRAFFIC (NO MEDIAN). USE SINGLE SIDED WHITE (RIGHT SIDE) AND SINGLE SIDED YELLOW (LEFT SIDE) ON ROADWAYS WITH MEDIAN SEPARATION.



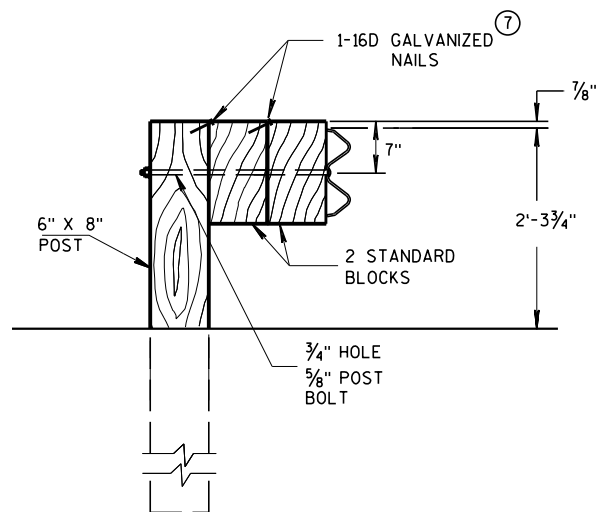
4" X 12" GUARDRAIL REFLECTOR DETAIL
AND TYPICAL INSTALLATION *



4"x 12" GUARDRAIL REFLECTOR

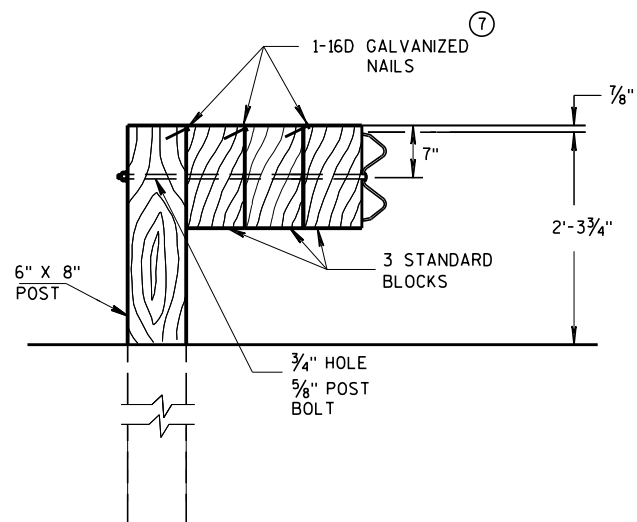
STEEL PLATE BEAM GUARD,
CLASS "A",
INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

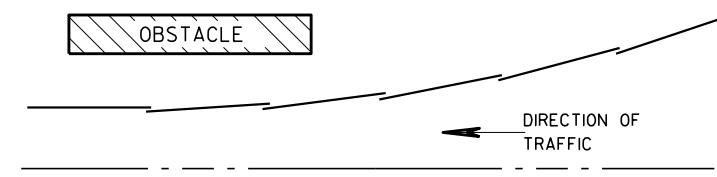


DETAIL FOR TRIPLE BLOCKS

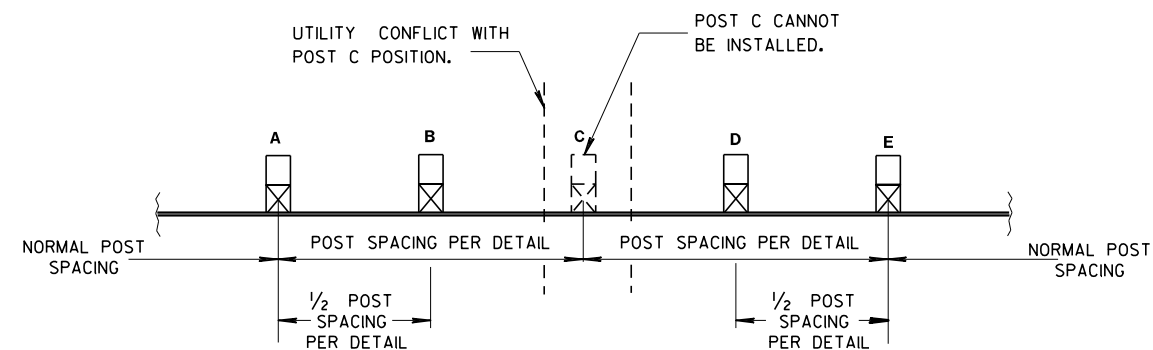
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND
SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION
DISTANCE OF THE BARRIER.



PLAN VIEW BEAM LAPPING DETAIL

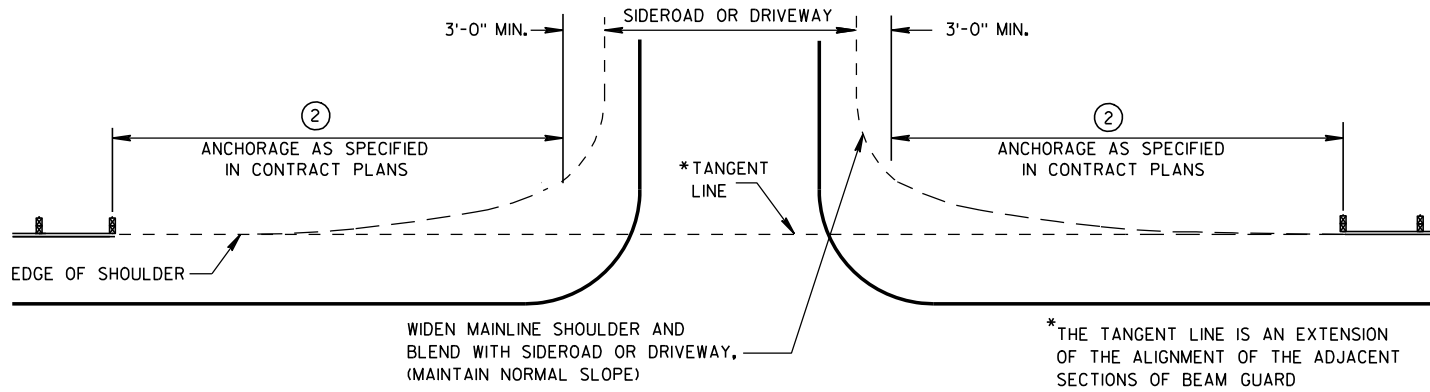


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

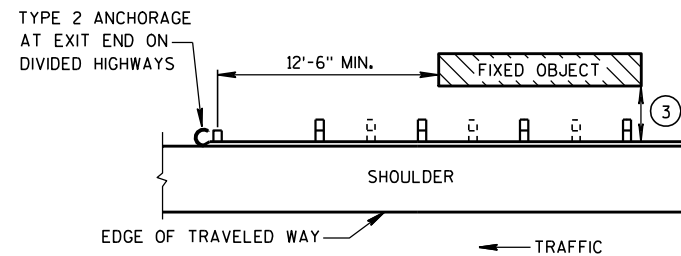
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED	/S/ Rodney Taylor
June 2017	DATE
	ROADWAY STANDARDS DEVELOPMENT
	UNIT SUPERVISOR
FHWA	



BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC

GENERAL NOTES

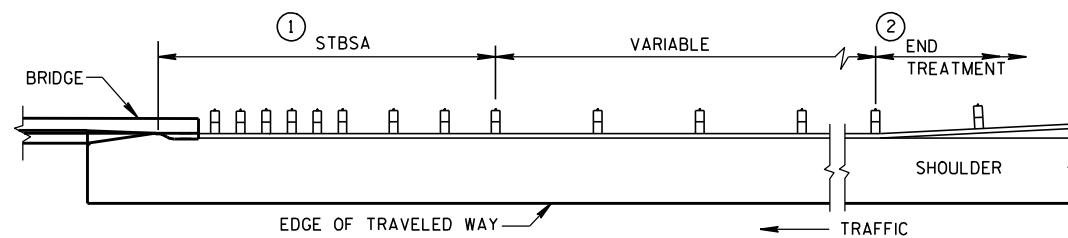
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

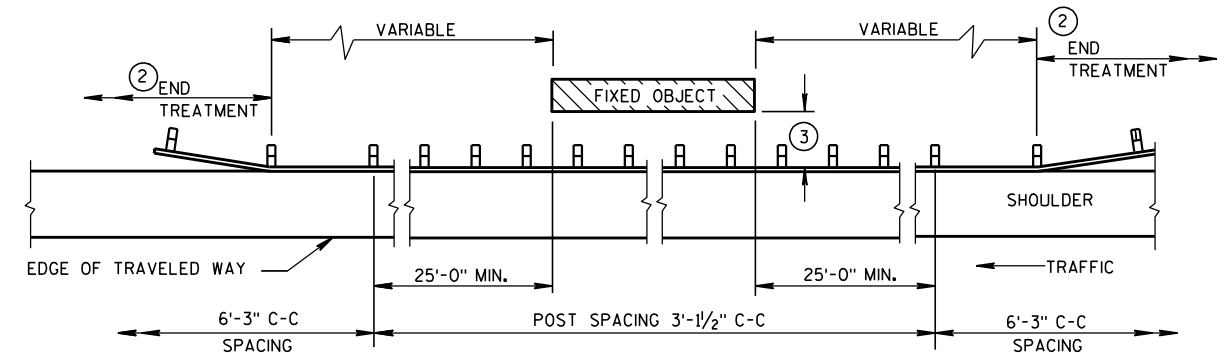
THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1½"
4'-6"	6' - 3"



BEAM GUARD AT FULL WIDTH BRIDGES

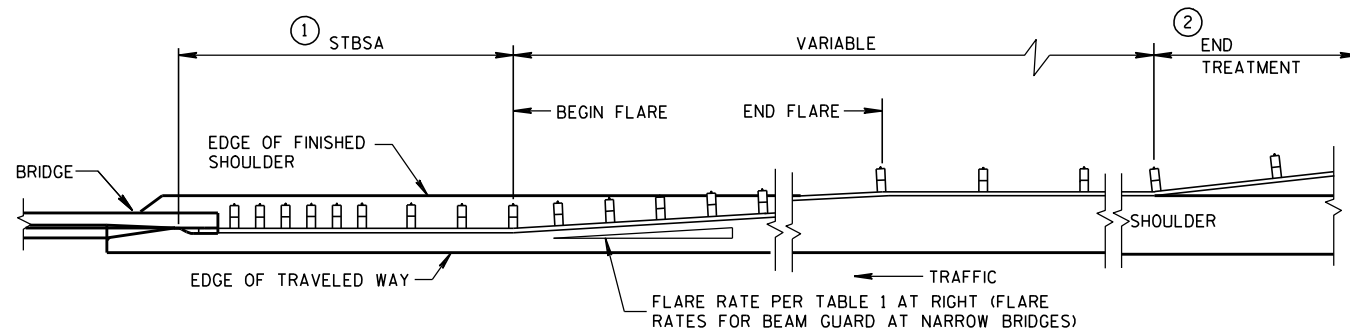


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1

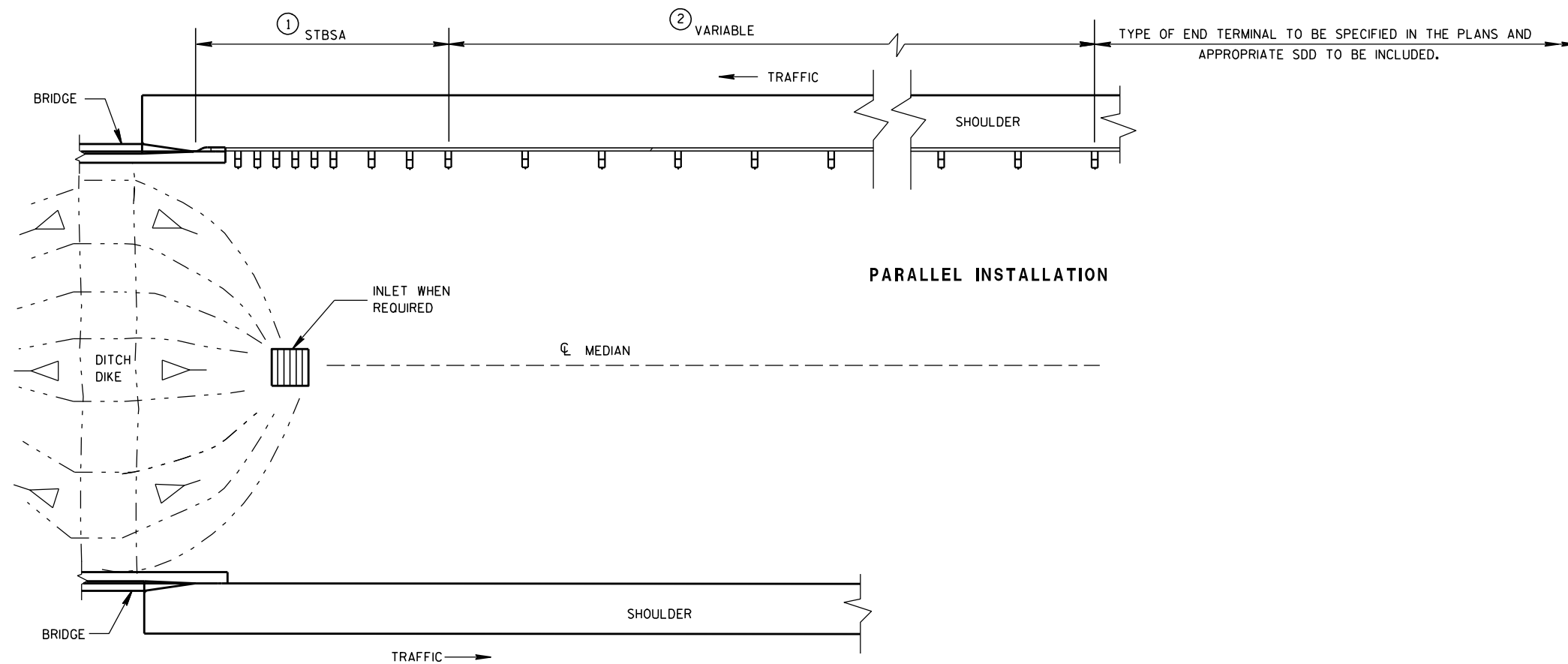


BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



PARALLEL INSTALLATION

BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

GENERAL NOTES

- ① STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- ② LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

STEEL PLATE BEAM GUARD
CLASS "A" AT
MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07
DATE

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/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

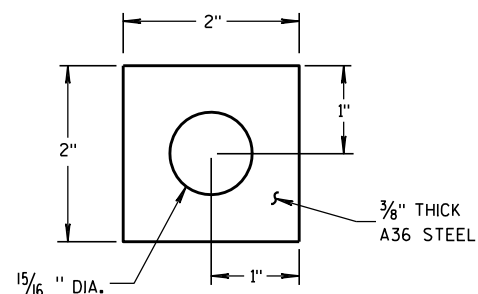
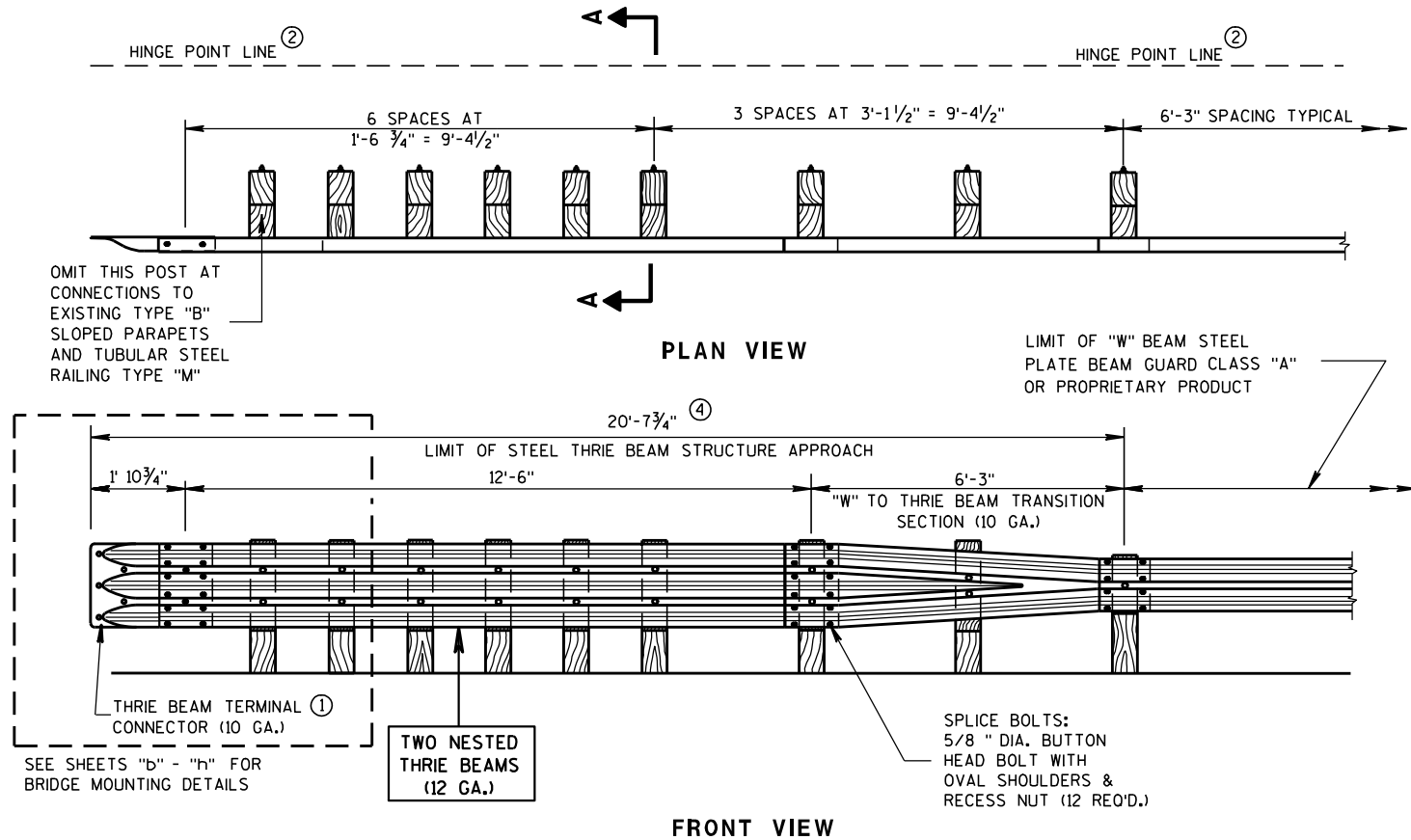


PLATE WASHER DETAIL

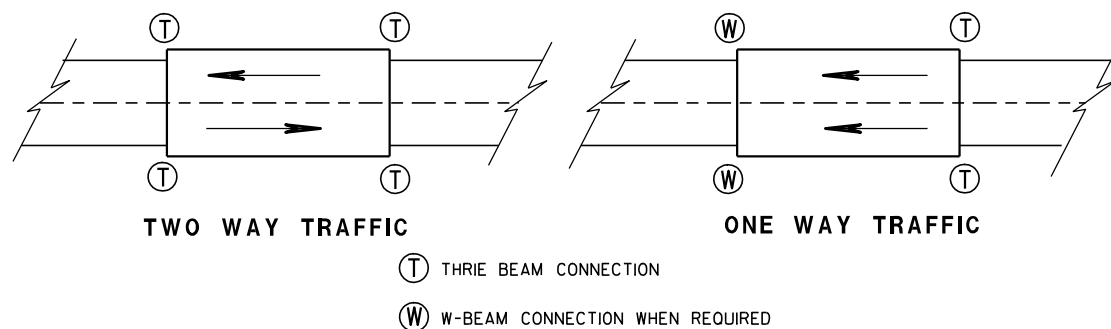
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

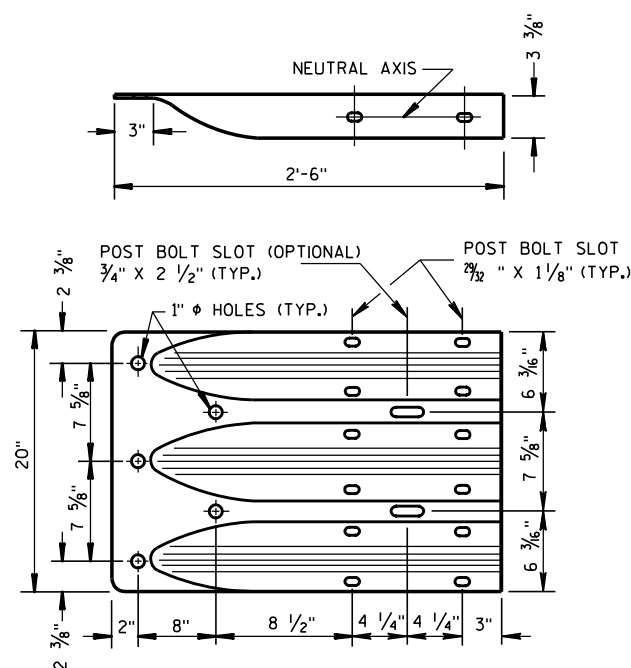
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

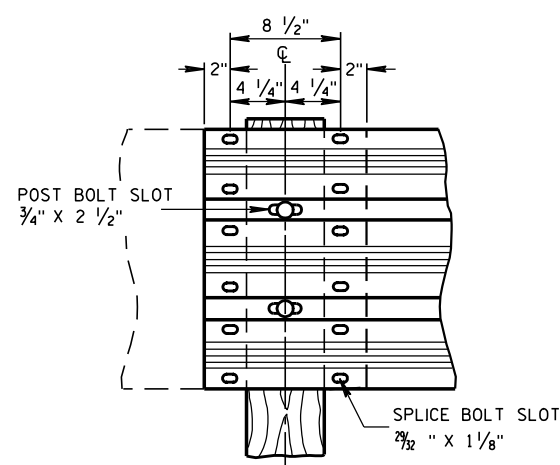
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



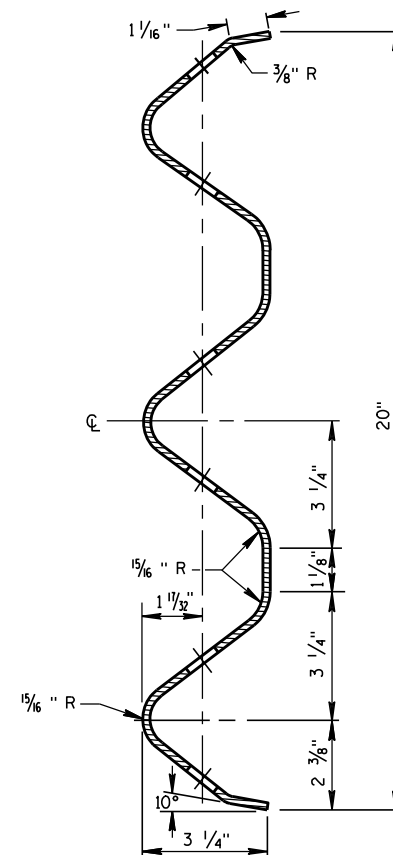
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



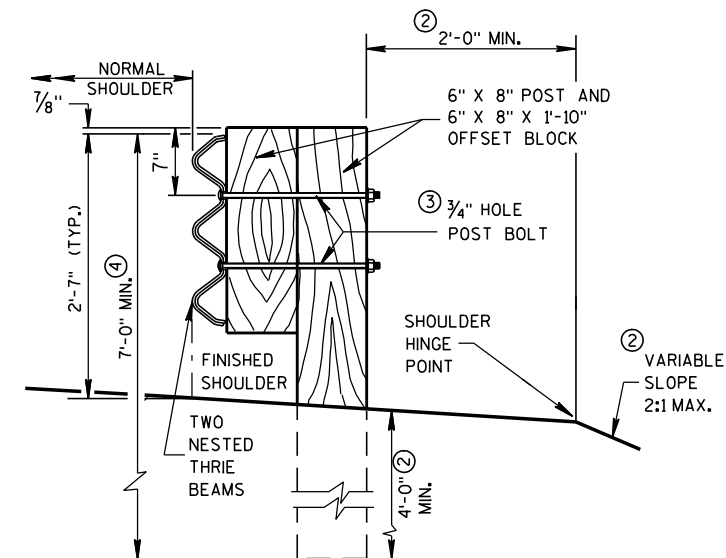
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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8/31/2012

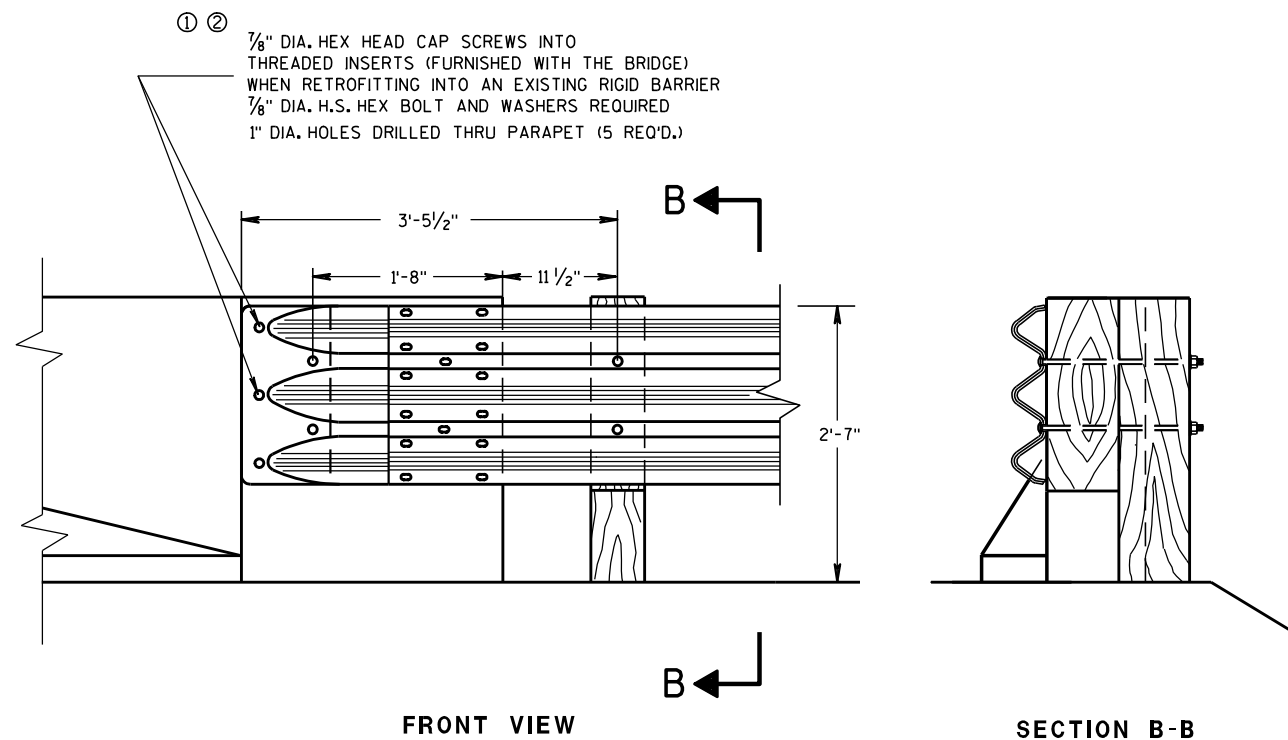
DATE

FHWA

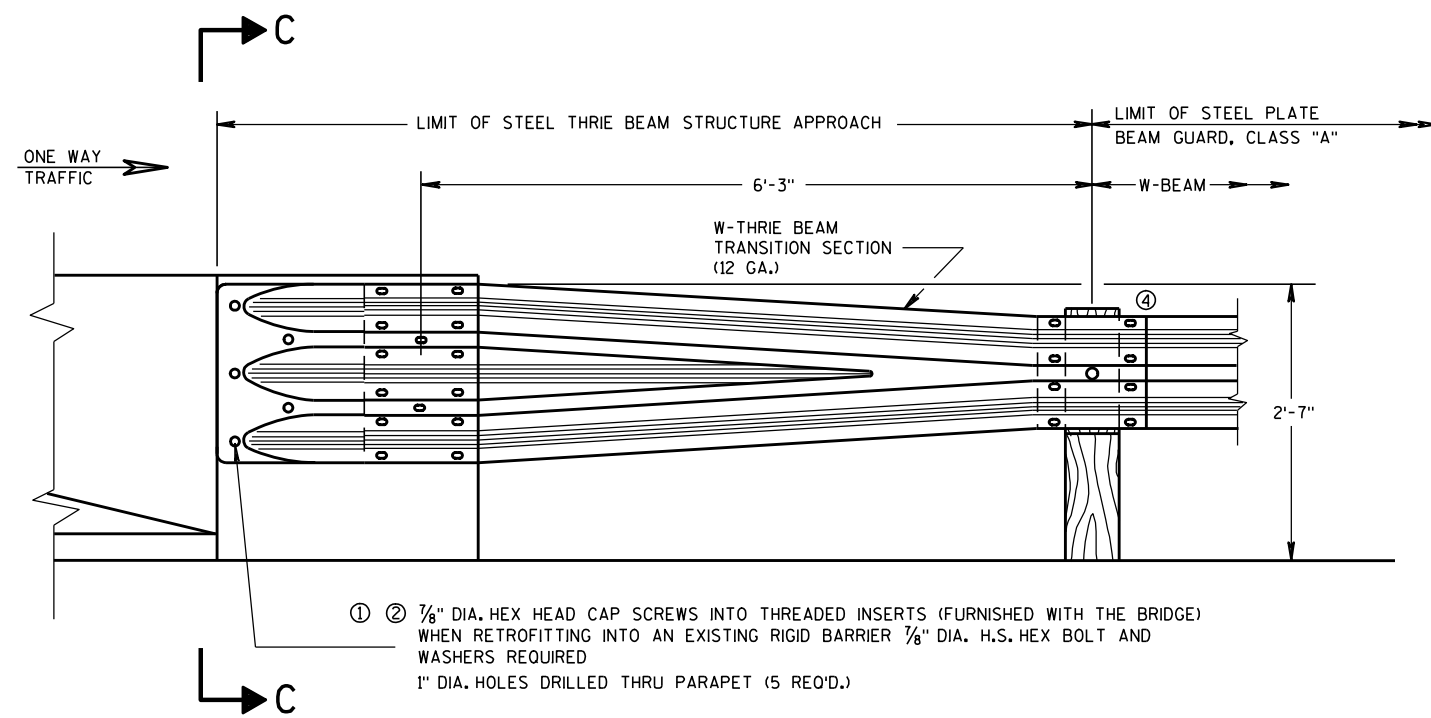
/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER



**THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS**



**W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

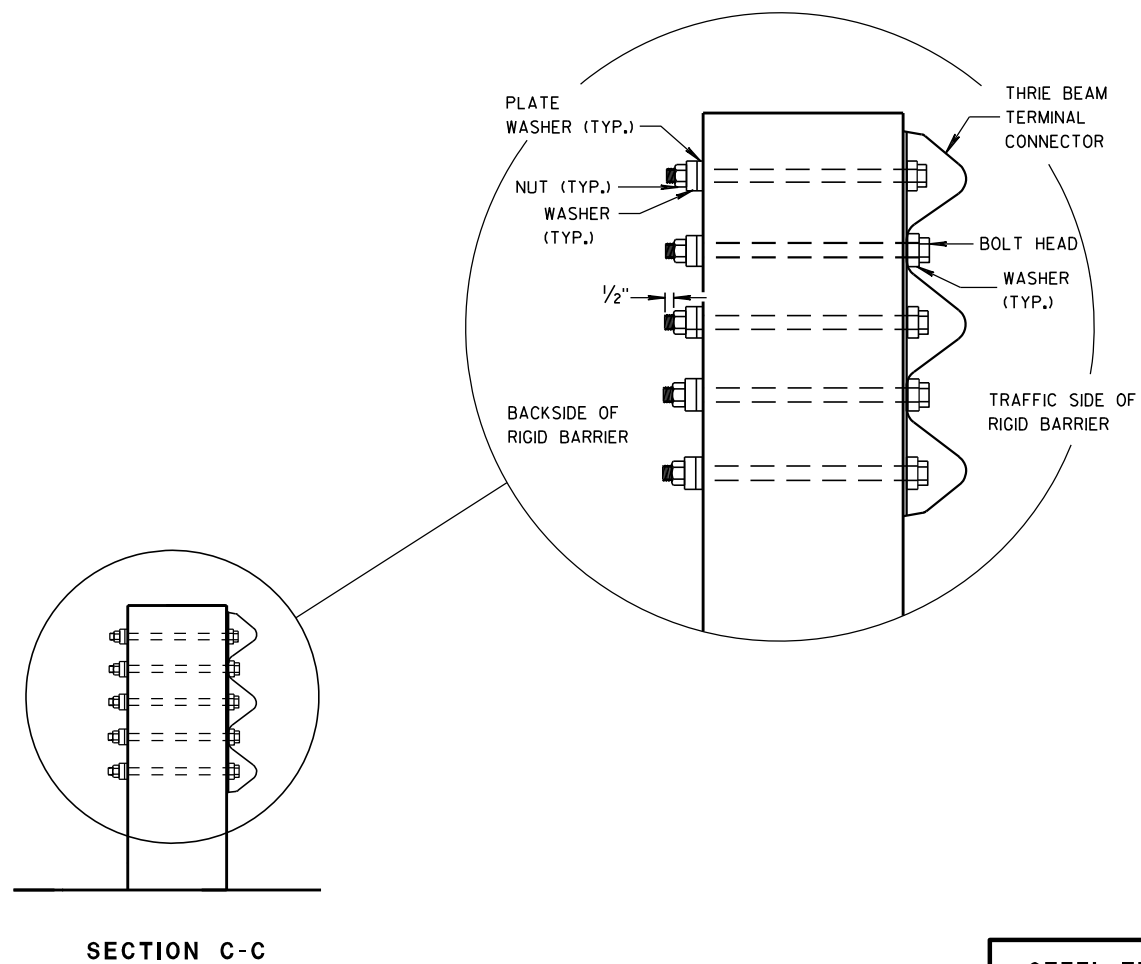
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
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8/31/2012
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/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

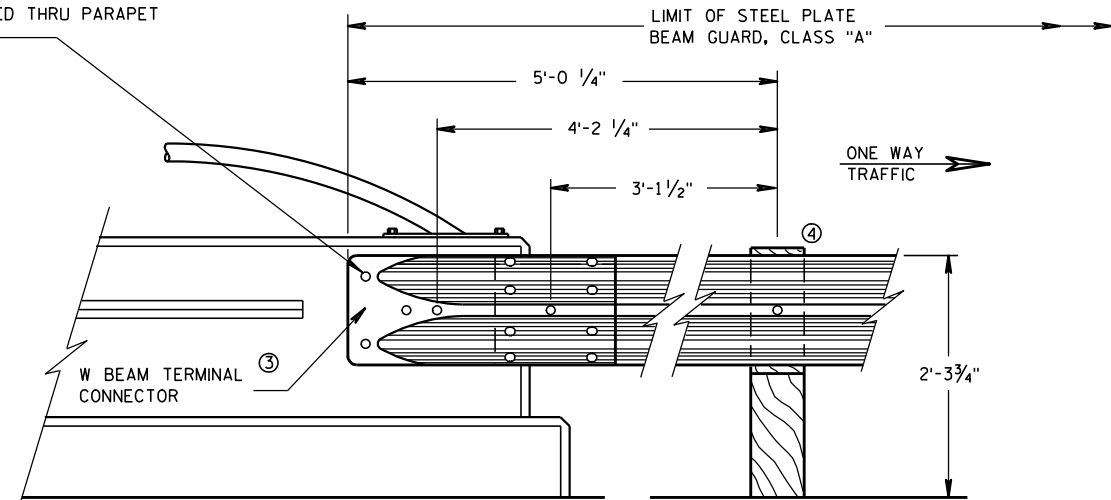
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

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- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}$ ".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
- ⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

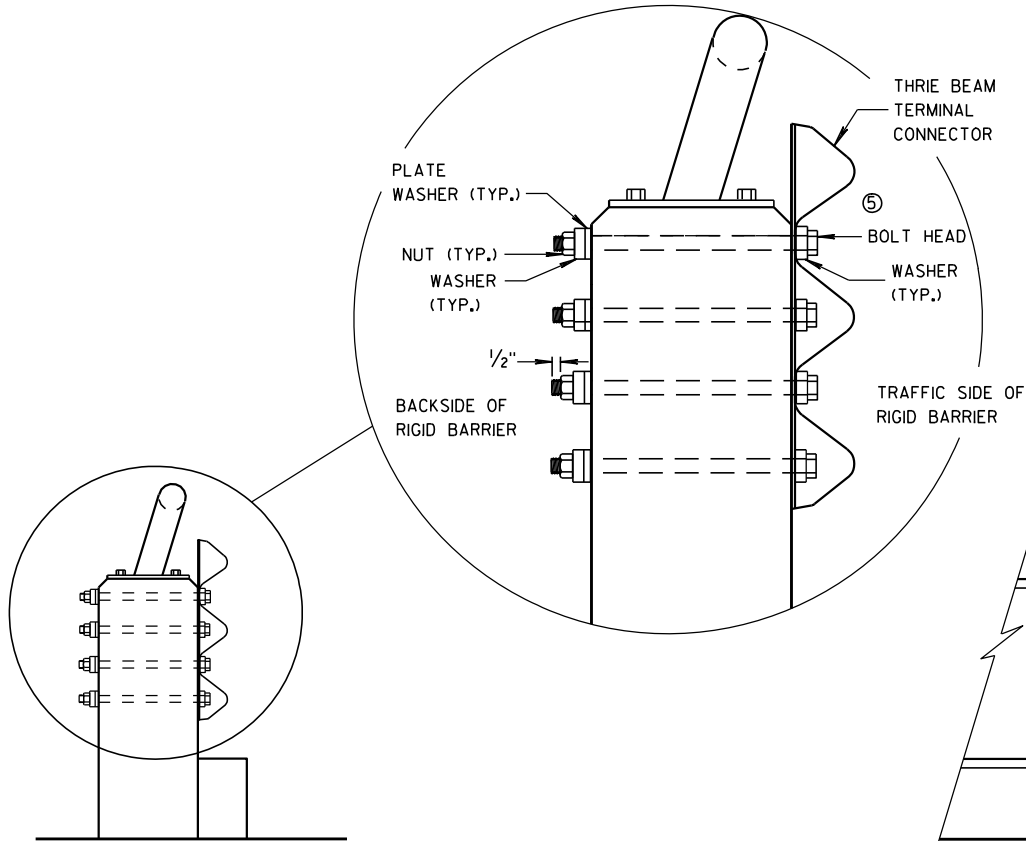
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

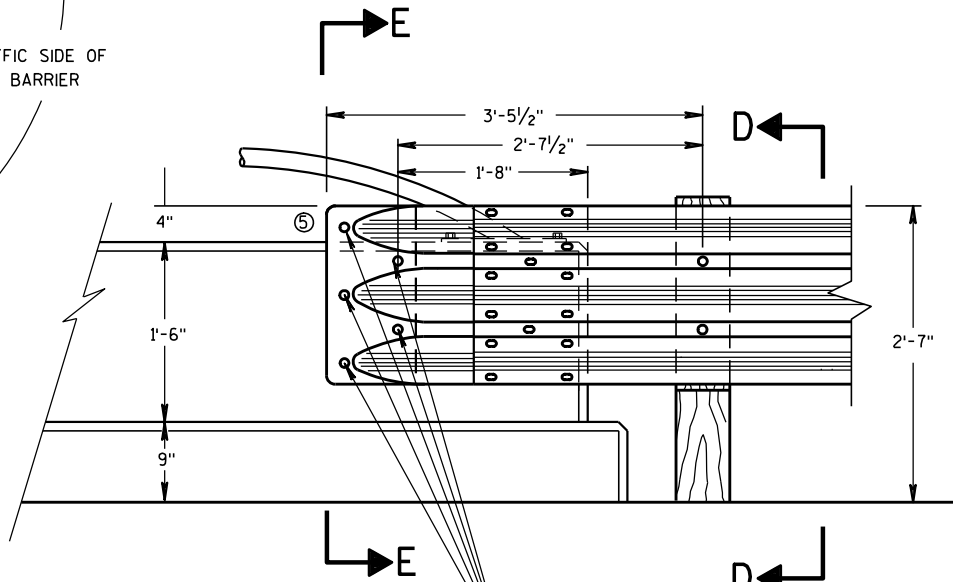


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



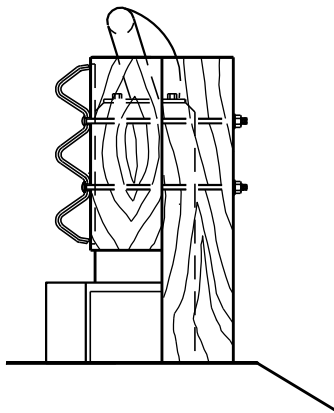
SECTION E-E



- ① ② $\frac{7}{8}$ " DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER $\frac{7}{8}$ " DIA. H.S. HEX BOLT AND WASHERS REQUIRED
- 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

FRONT VIEW

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

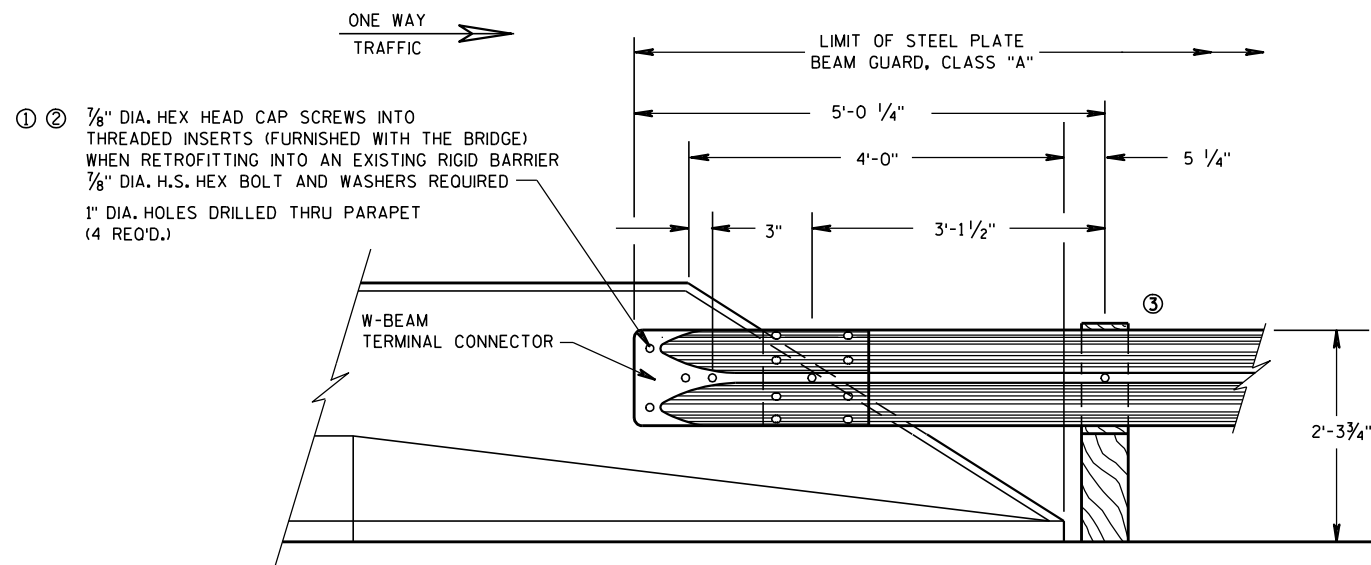


SECTION D-D

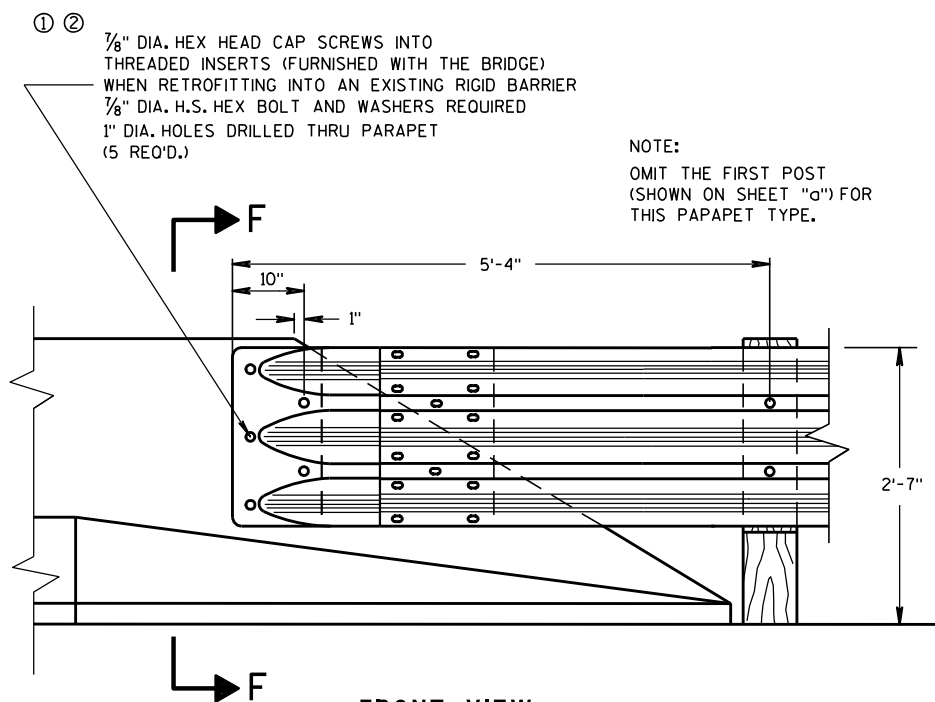
STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
VERTICAL FACED PARAPETS

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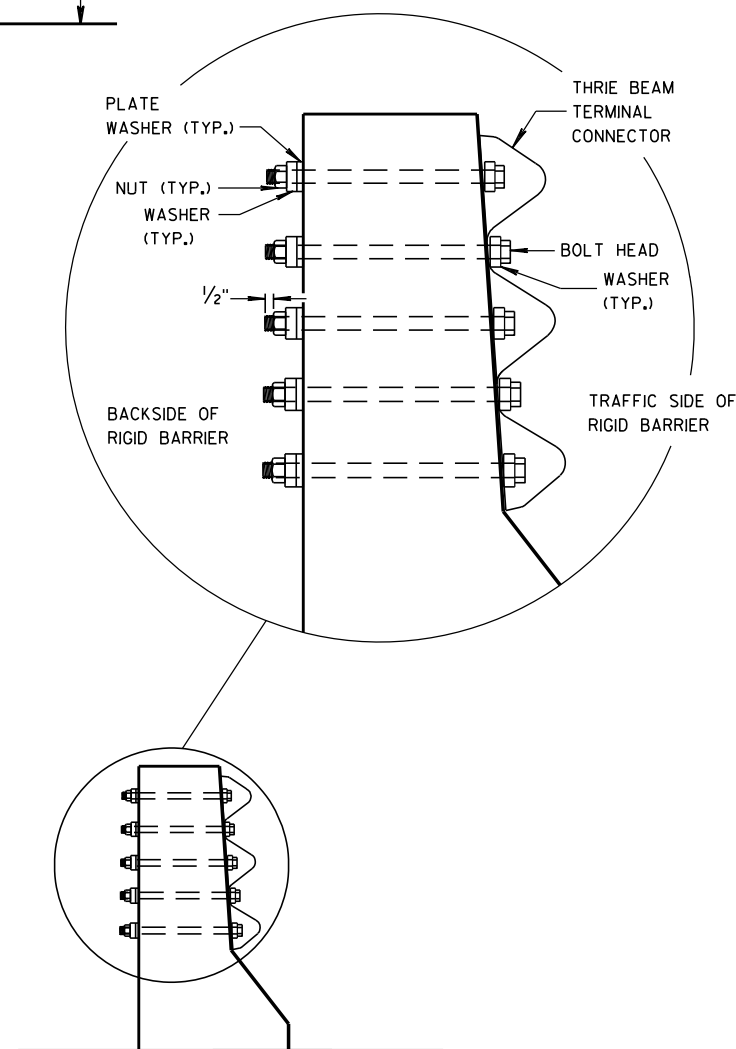
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8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



FRONT VIEW
W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
 (USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)



FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS



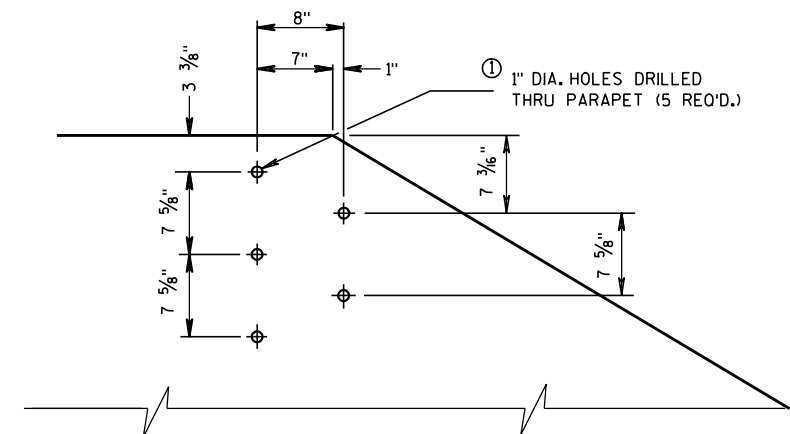
SECTION F-F

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION

STEEL THRIE BEAM STRUCTURE APPROACH CONNECTION TO SLOPED END PARAPETS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

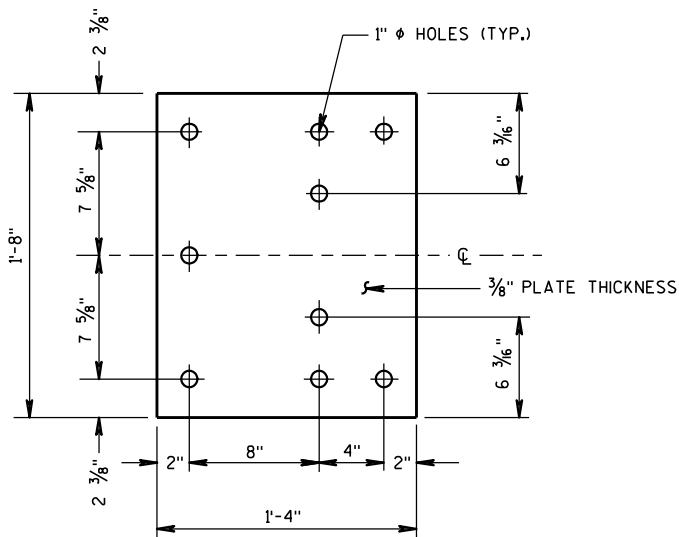
APPROVED

8/31/2012

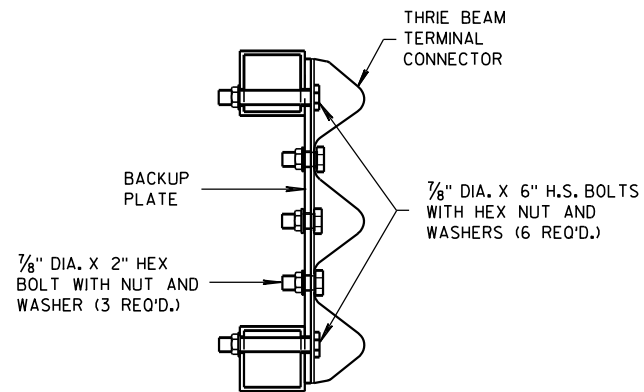
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FHWA

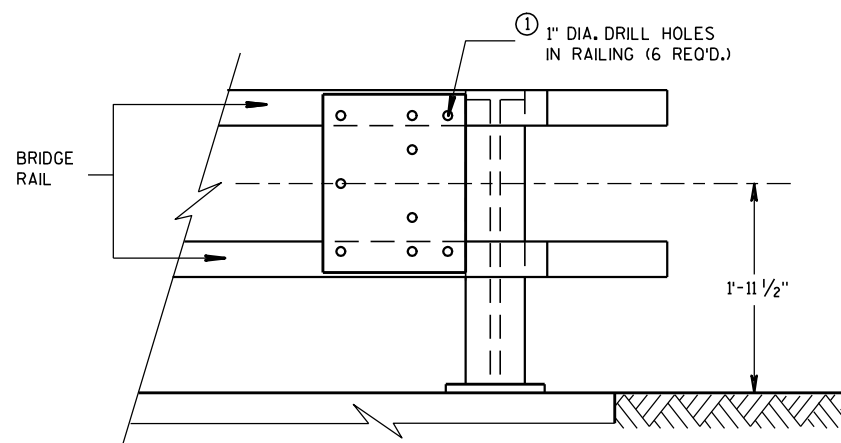
/S/ Jerry H. Zogg
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER



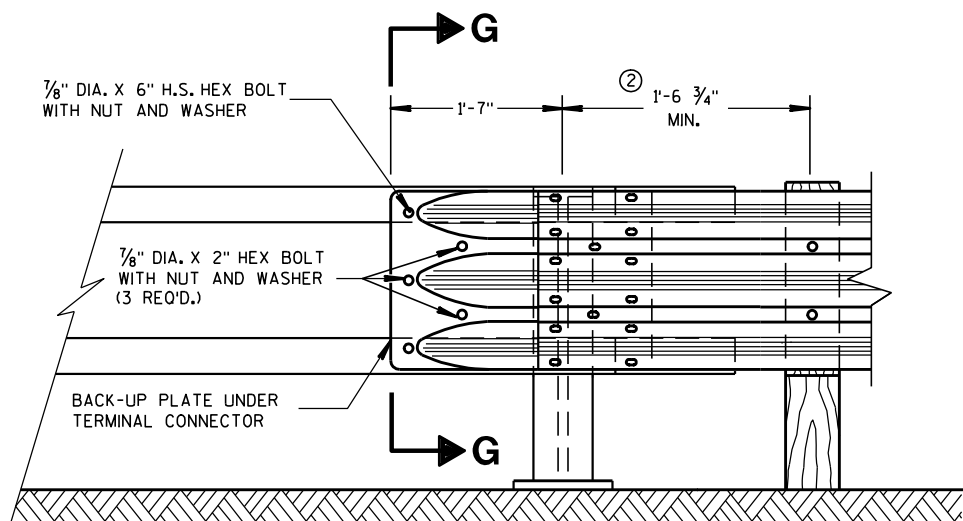
BACK-UP PLATE DETAIL



SECTION G-G

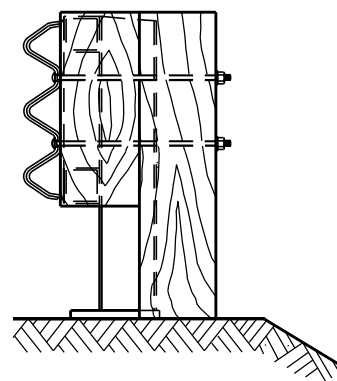


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

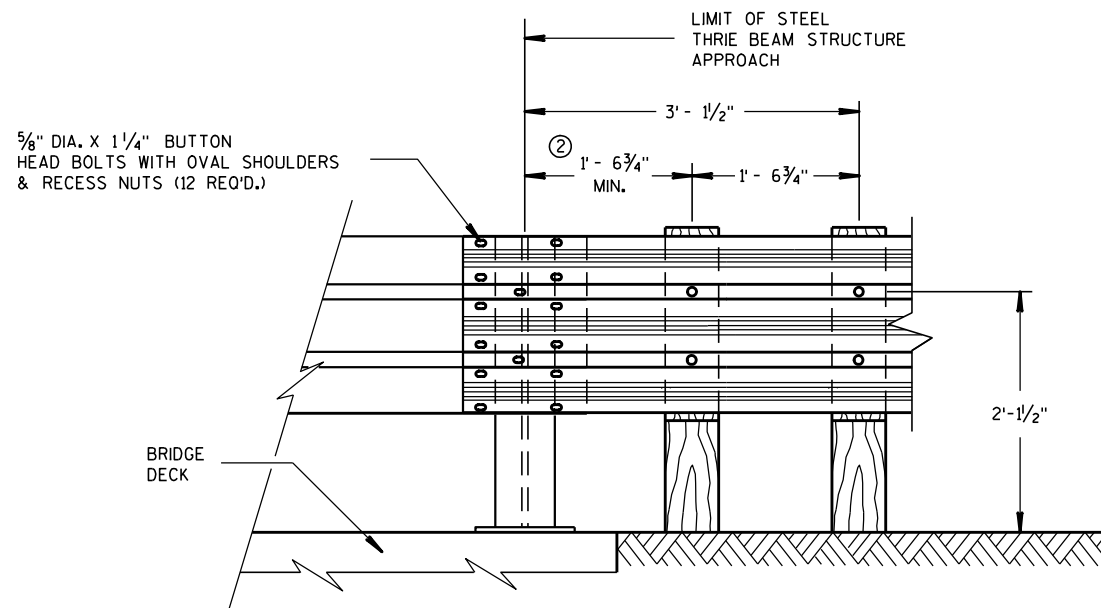


END VIEW

GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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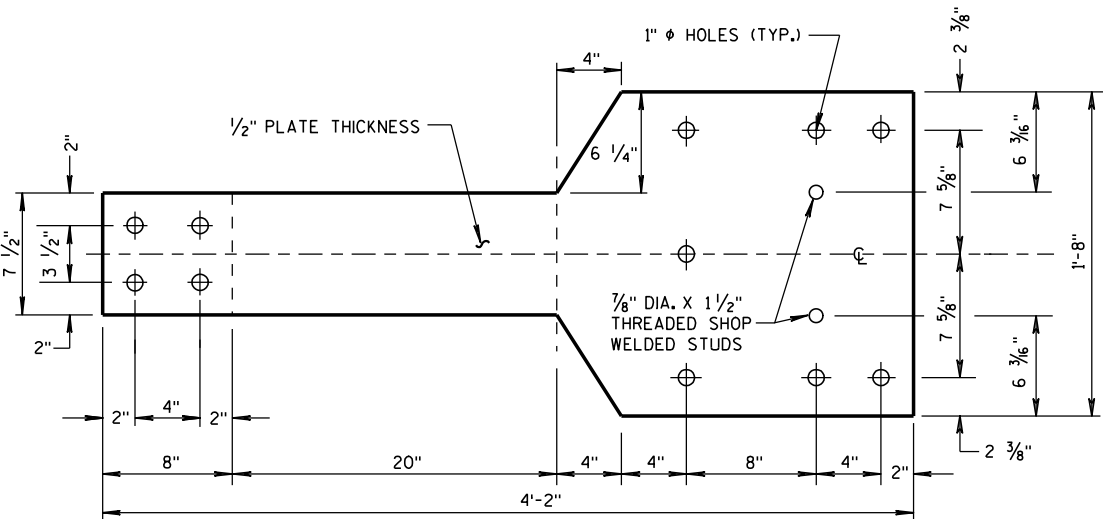
8/31/2012
DATE

FHWA

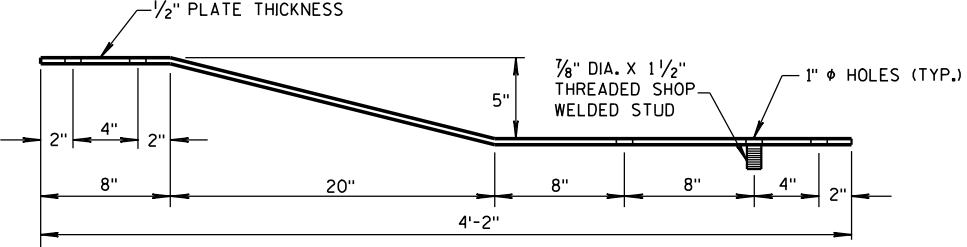
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

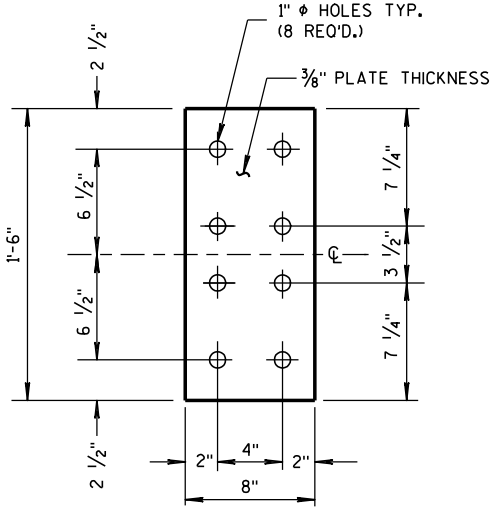
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



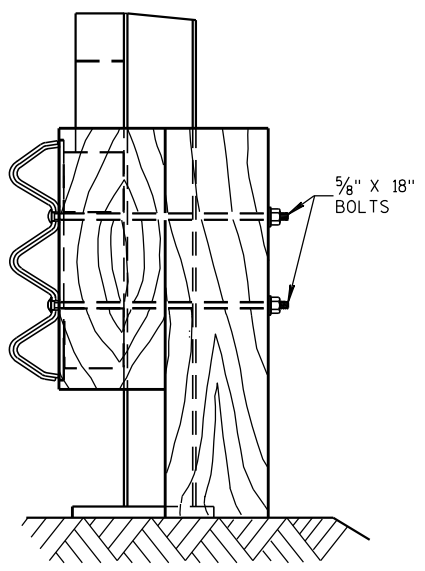
FRONT VIEW



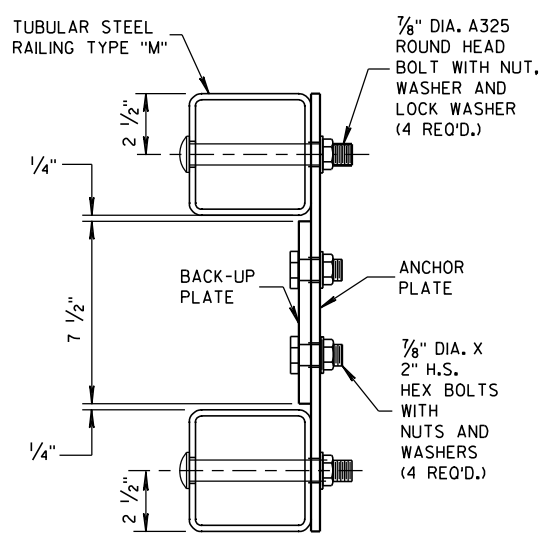
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



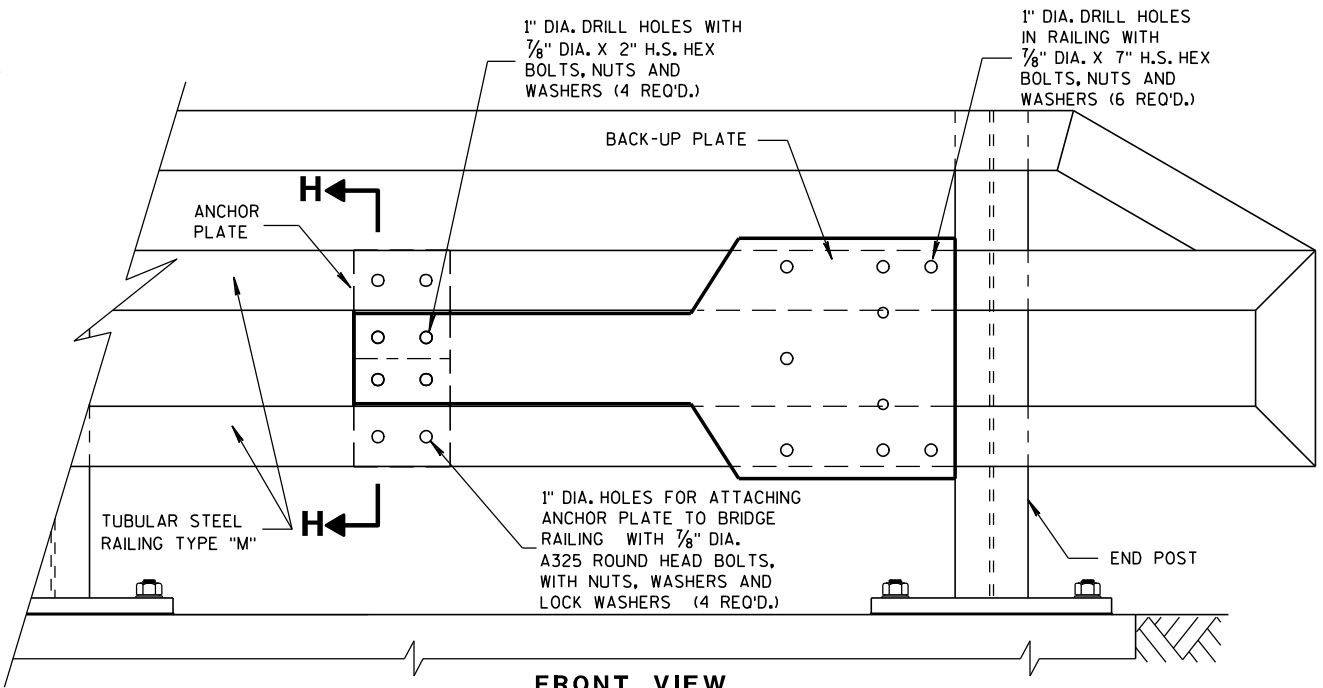
FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"



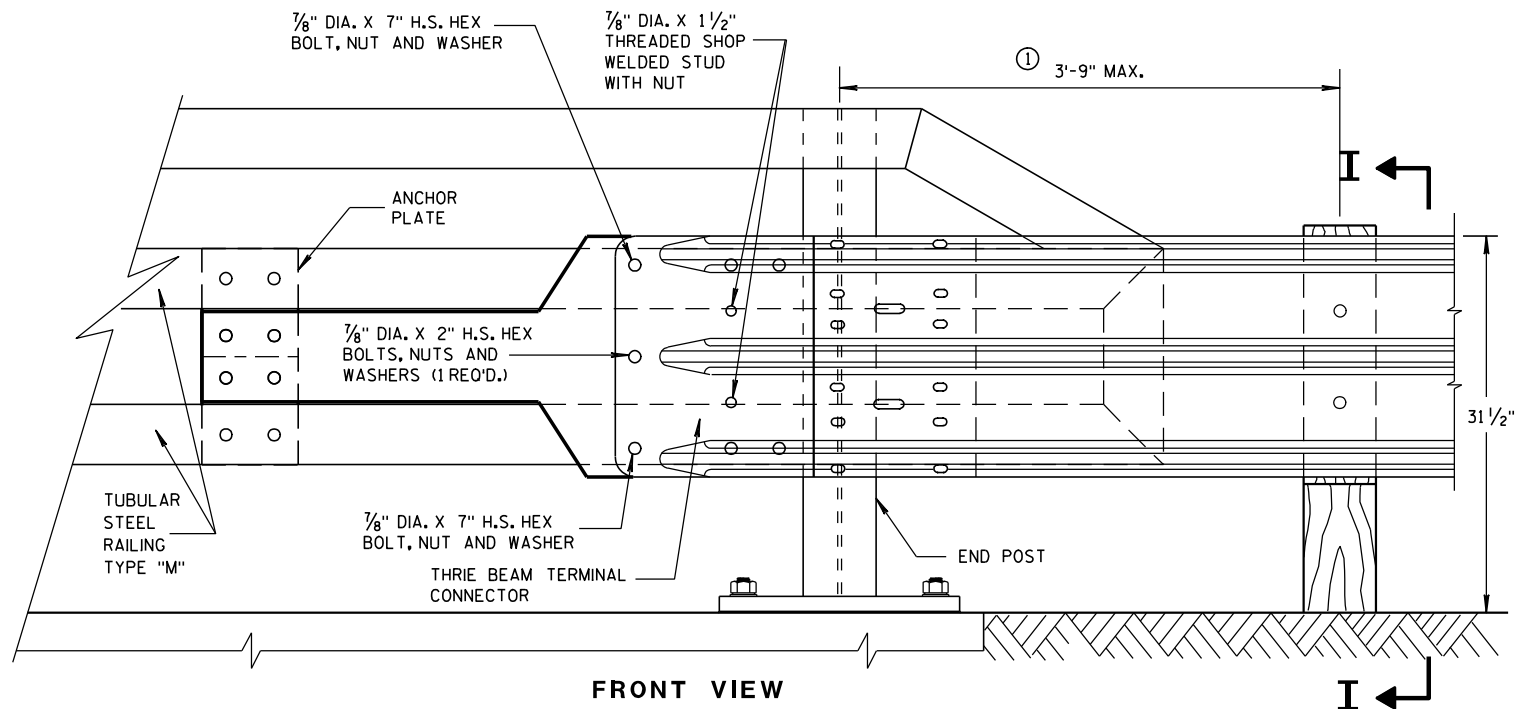
SECTION I-I



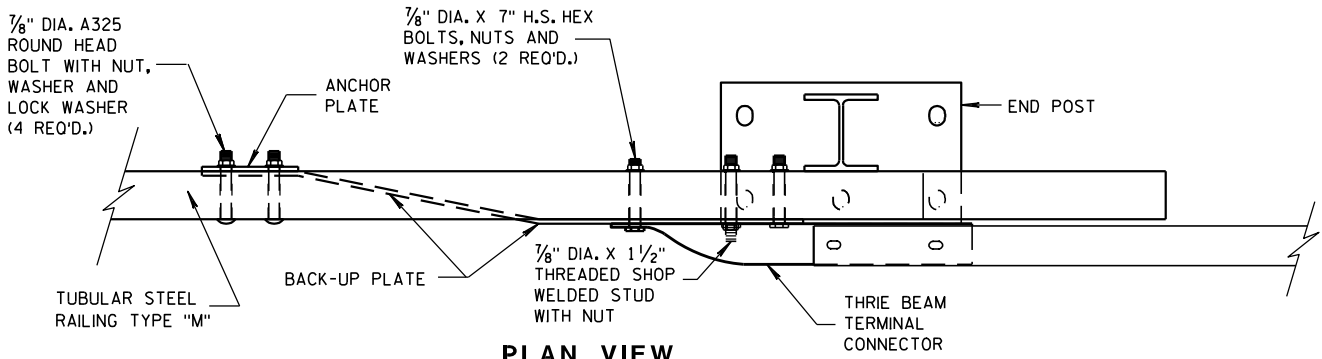
SECTION H-H



FRONT VIEW
ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



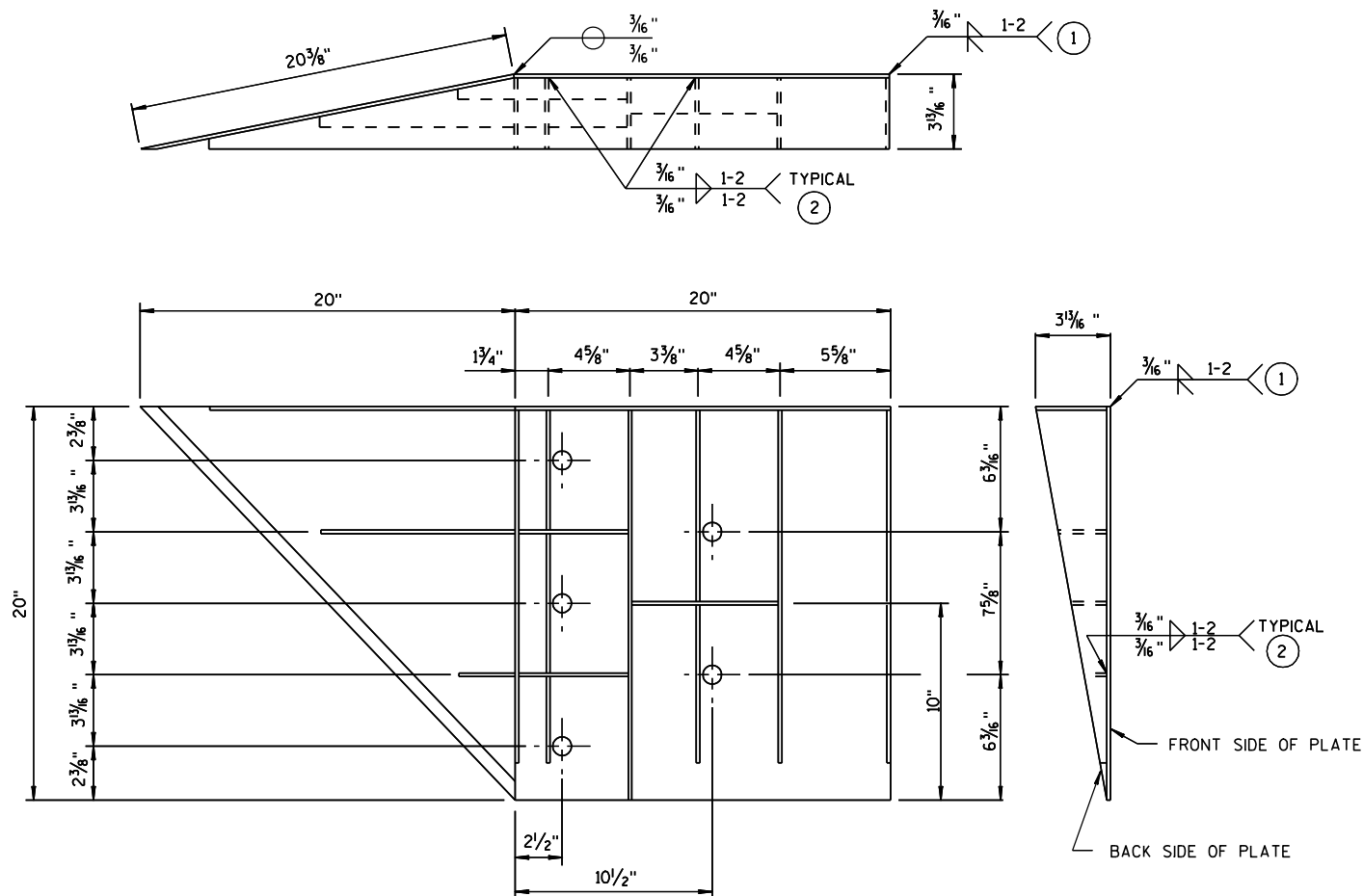
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 5/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 7/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- 1 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 2 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

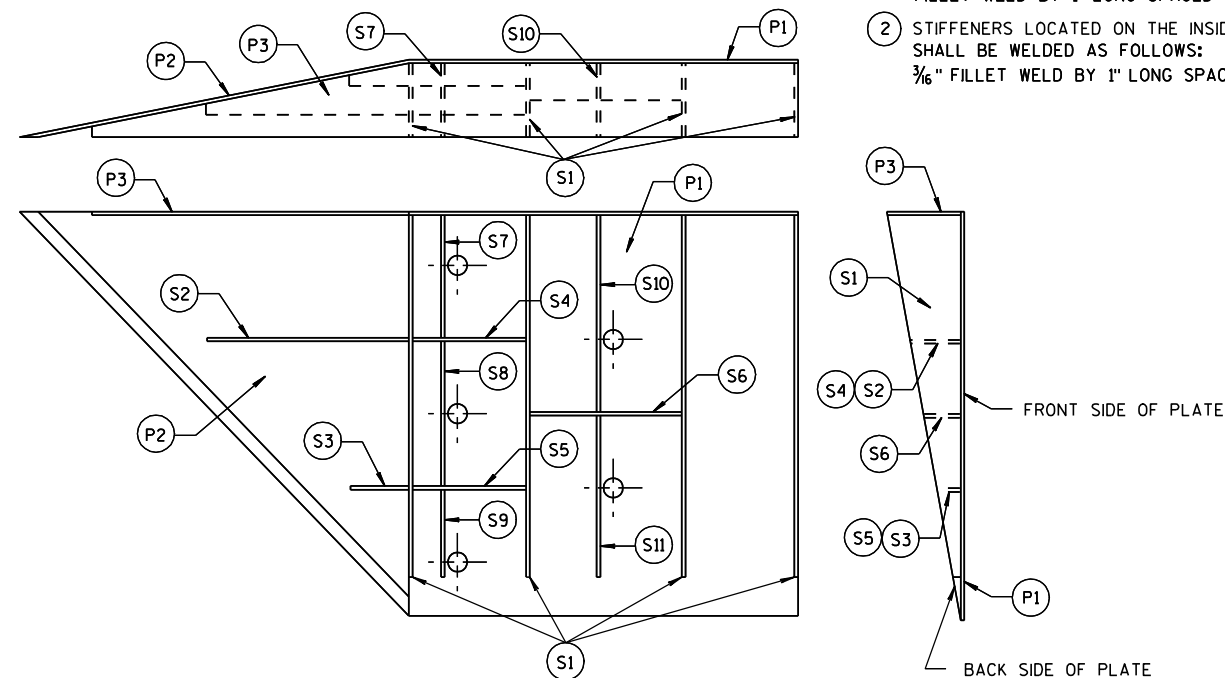
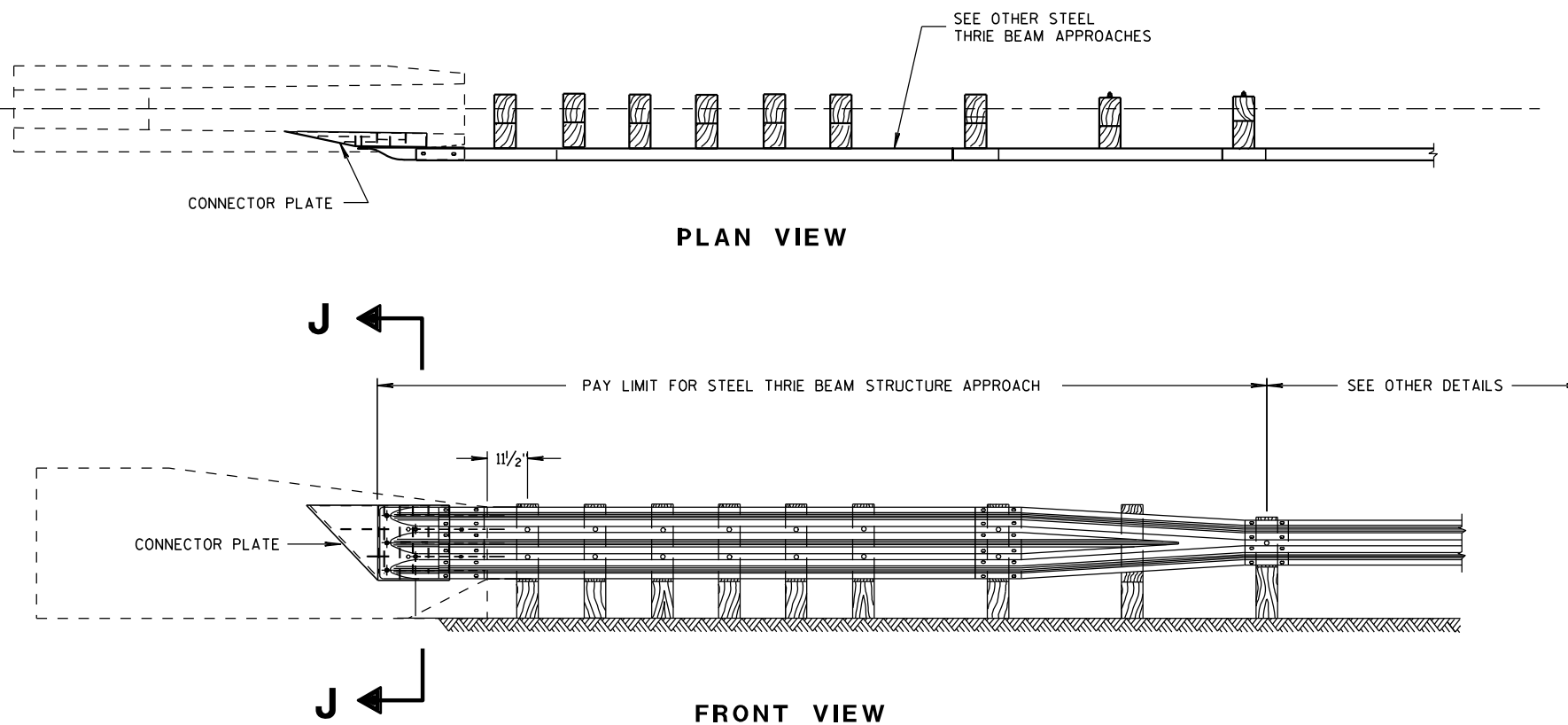
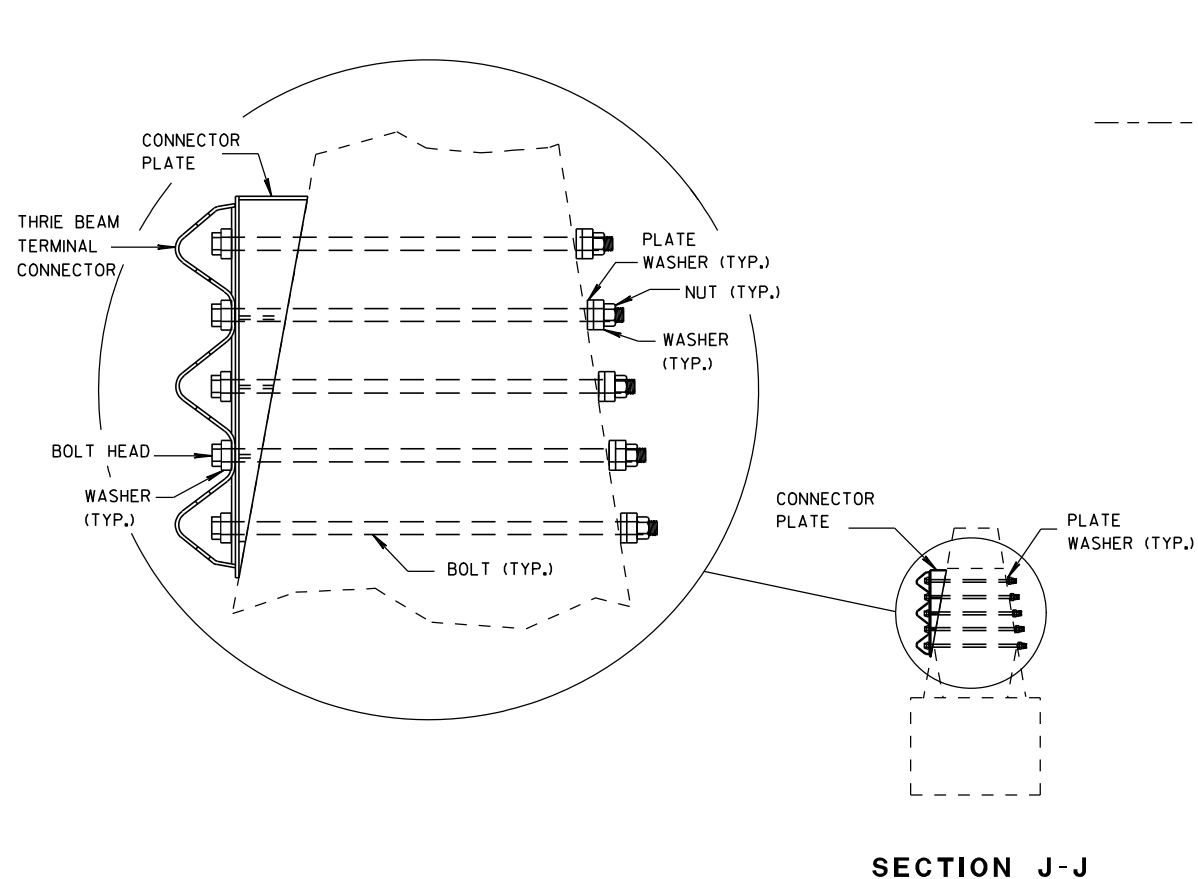


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

**STEEL THRIE BEAM
STRUCTURE APPROACH,
CONNECTOR PLATE DETAIL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

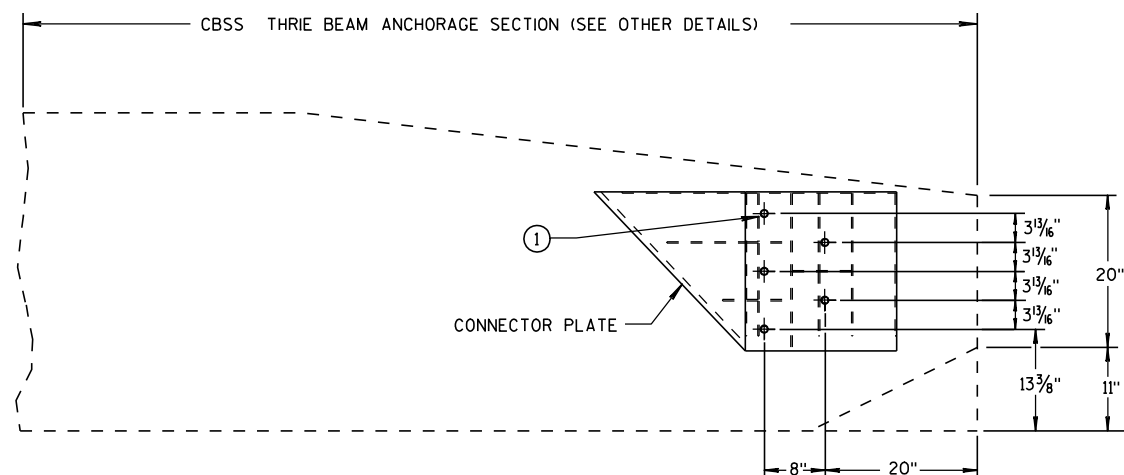


GENERAL NOTES

CONSTRUCT PER STANDARD SPECIFICATION 614.

CONNECTOR PLATE, DRILLING HOLES THROUGH PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{8}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.



CONNECTOR PLATE LOCATION

STEEL THRIE BEAM STRUCTURE APPROACH

STEEL THRIE BEAM
STRUCTURE APPROACH,
SINGLE SLOPE ATTACHMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5 1/2" X 7 1/2" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 1/2" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6 1/2"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

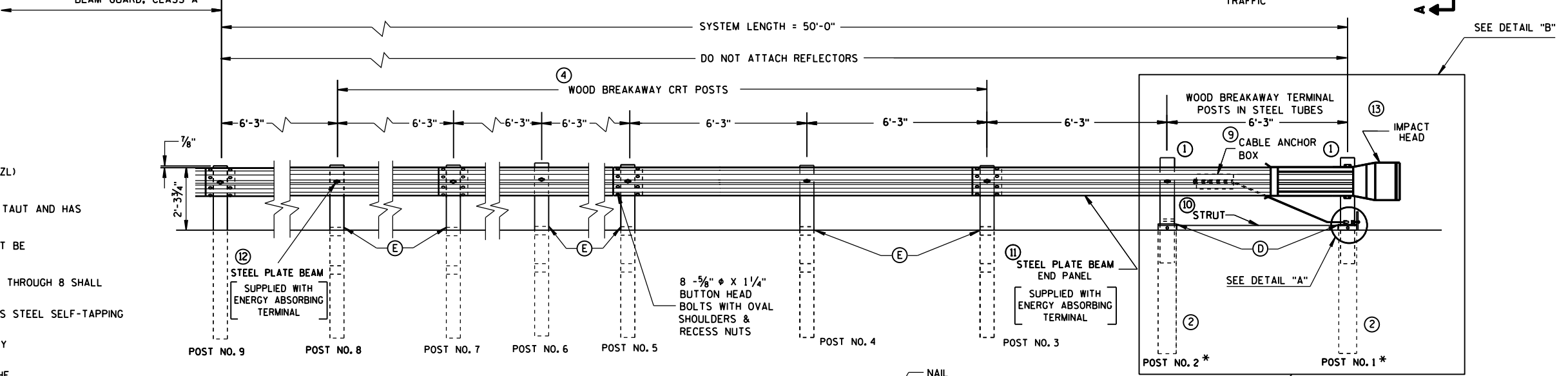
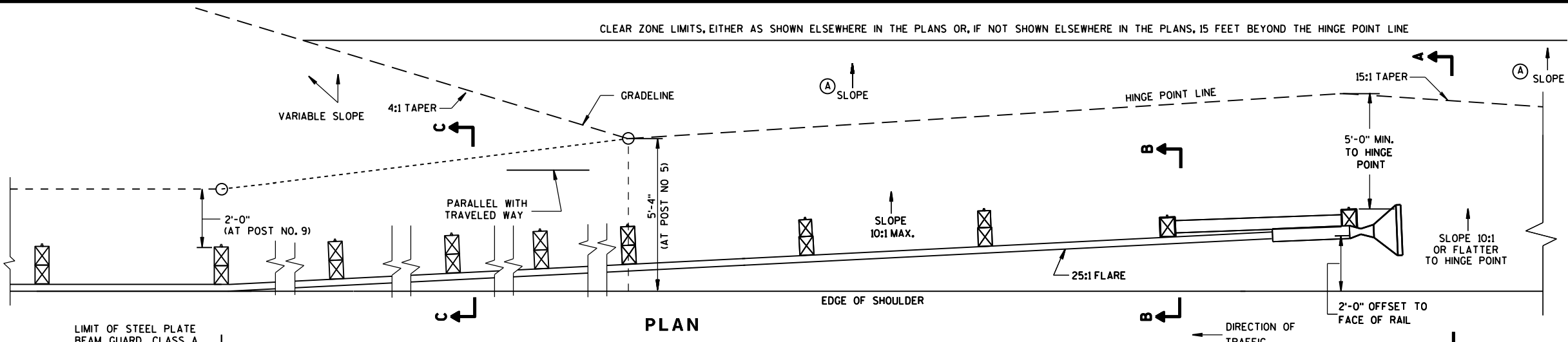
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3 1/2" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE 3/4" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

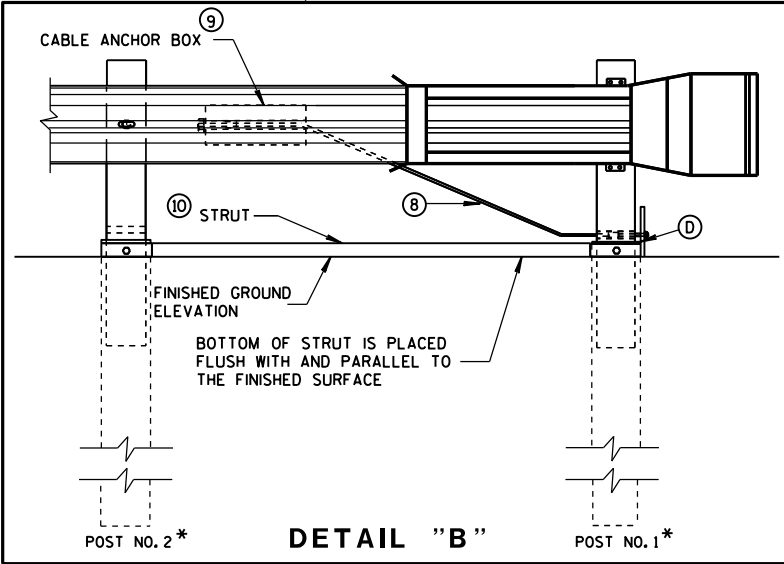
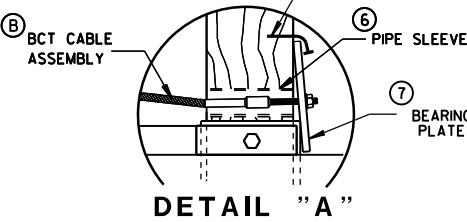
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

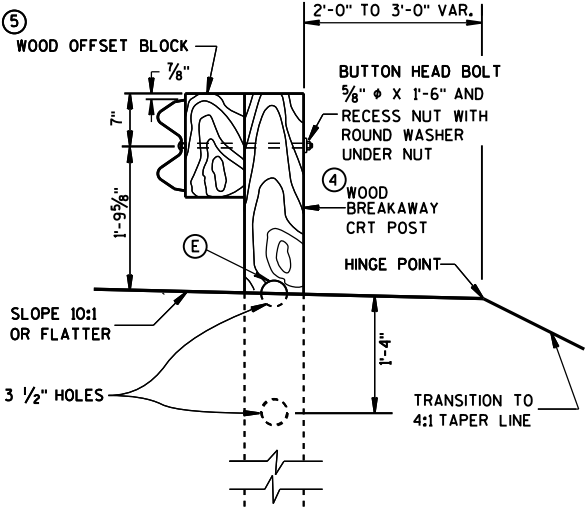
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



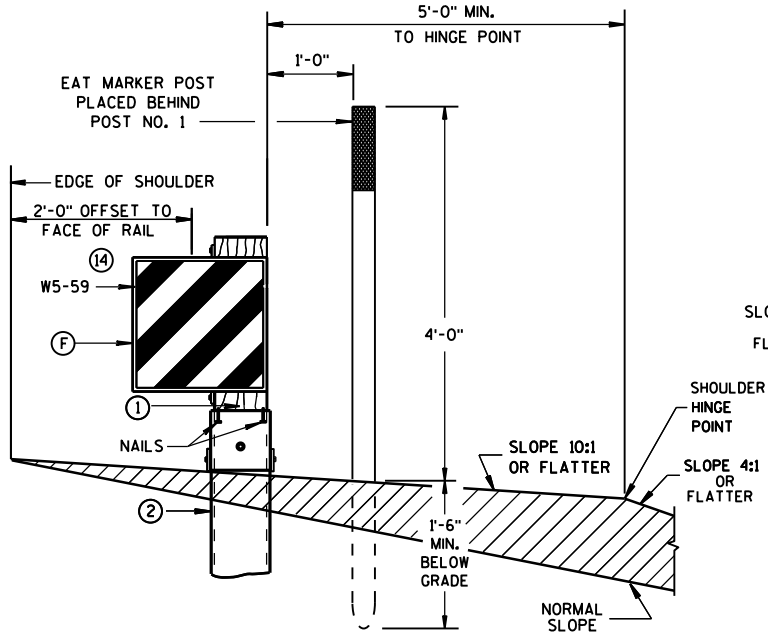
ELEVATION



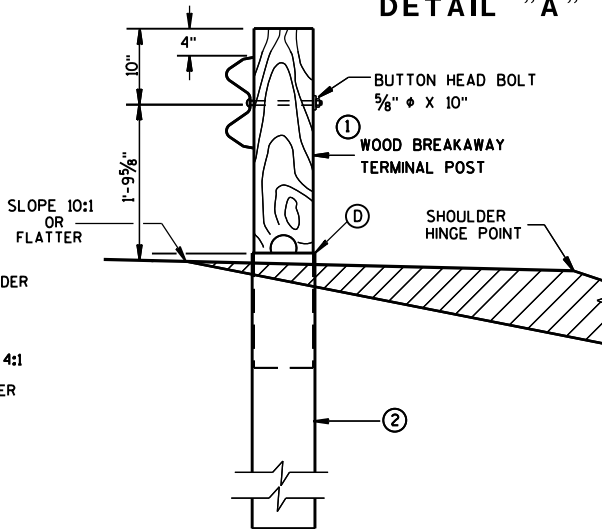
DETAIL "B"



SECTION C-C
TYPICAL AT POST NOS. 6, 8



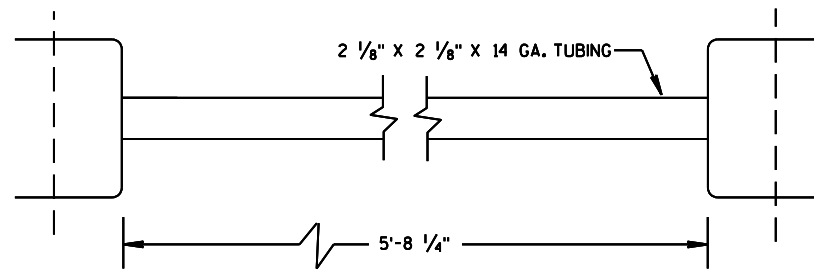
SECTION A-A
TYPICAL AT POST NO. 1*



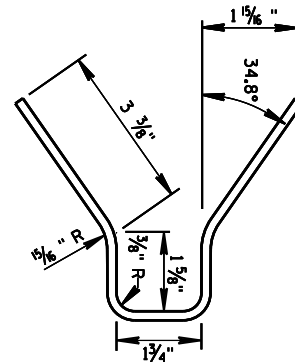
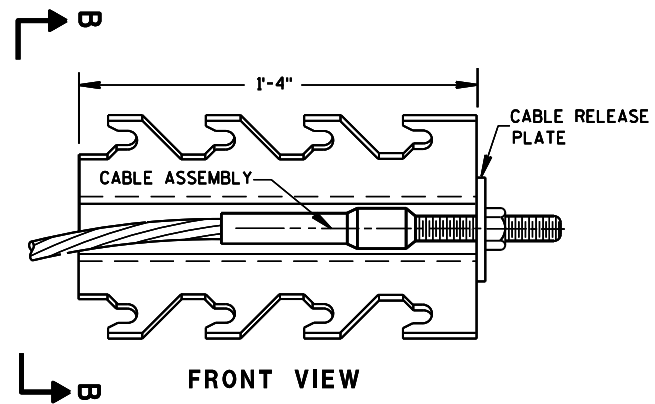
SECTION B-B
TYPICAL AT POST NO. 2*

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

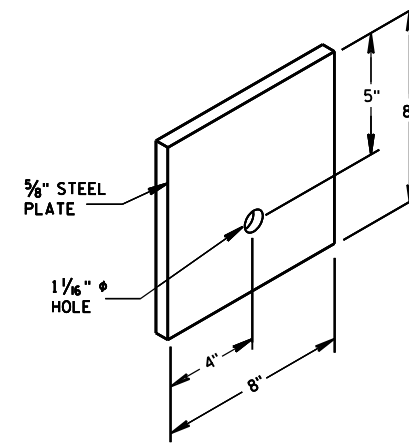


⑩ STRUT DETAIL



SECTION B-B

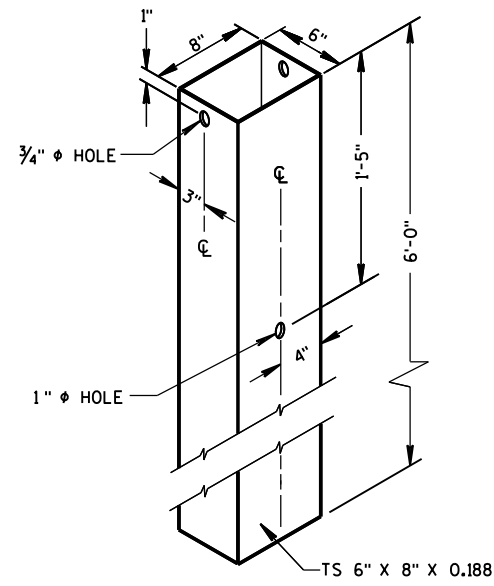
⑨ CABLE ANCHOR BOX



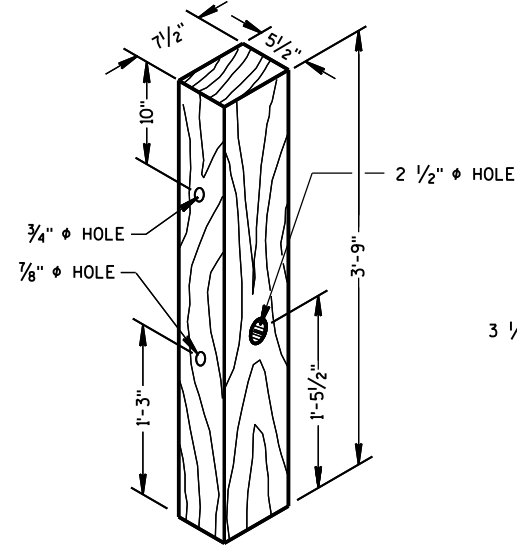
⑦ STEEL BEARING PLATE

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

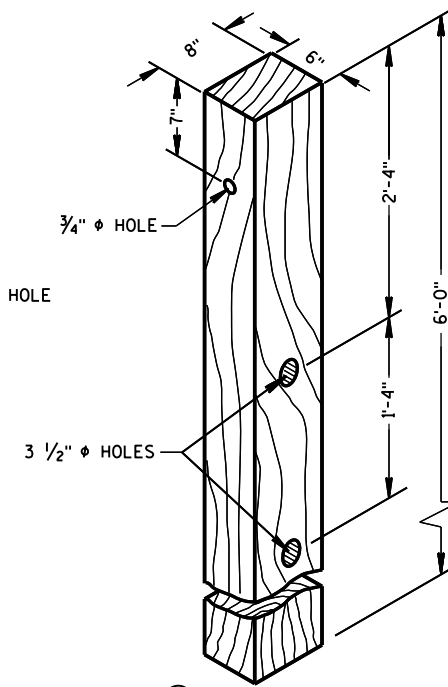
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

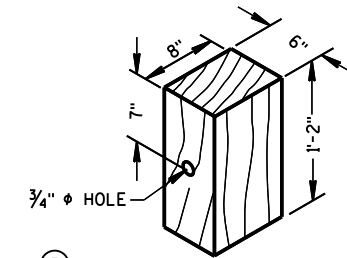


④ **CRT POST**
(POSTS NO'S 5-8)

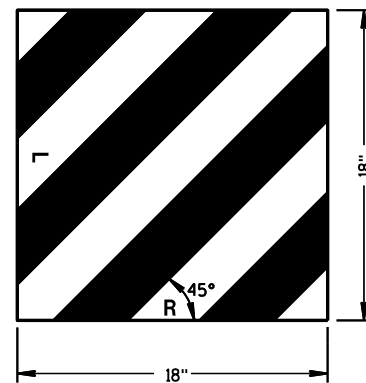
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.

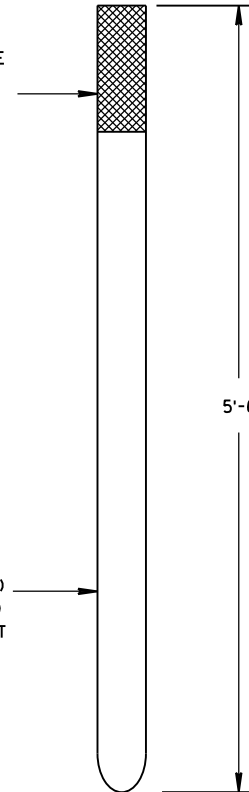


⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.



FRONT VIEW



SIDE VIEW

E.A.T. MARKER POST

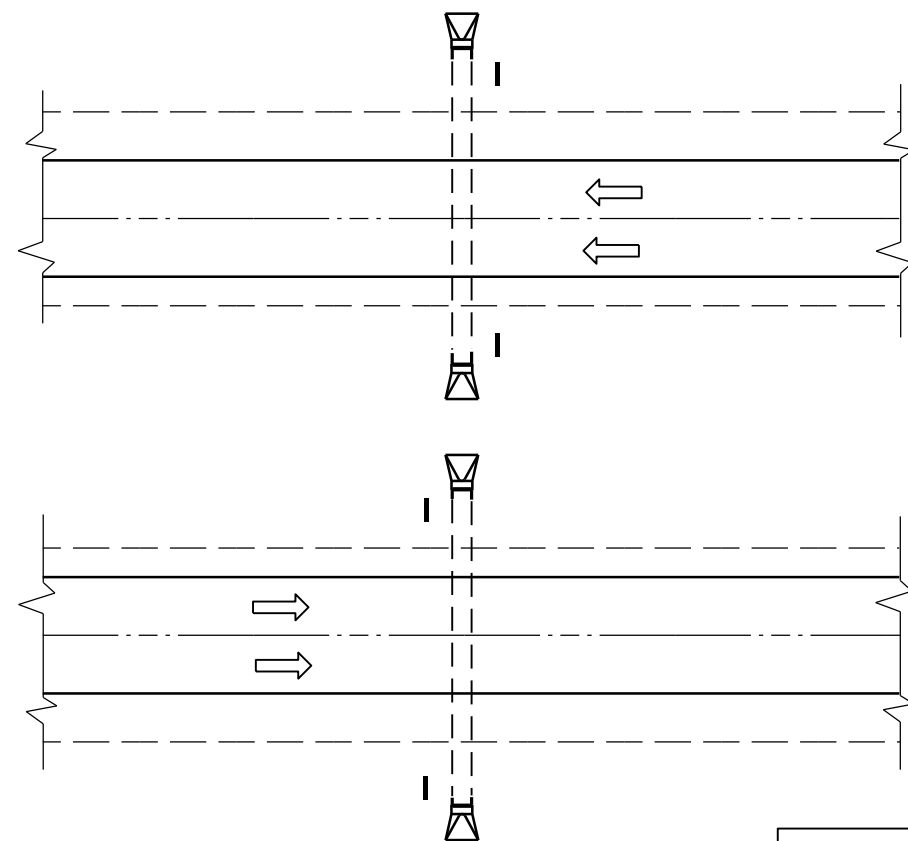
E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

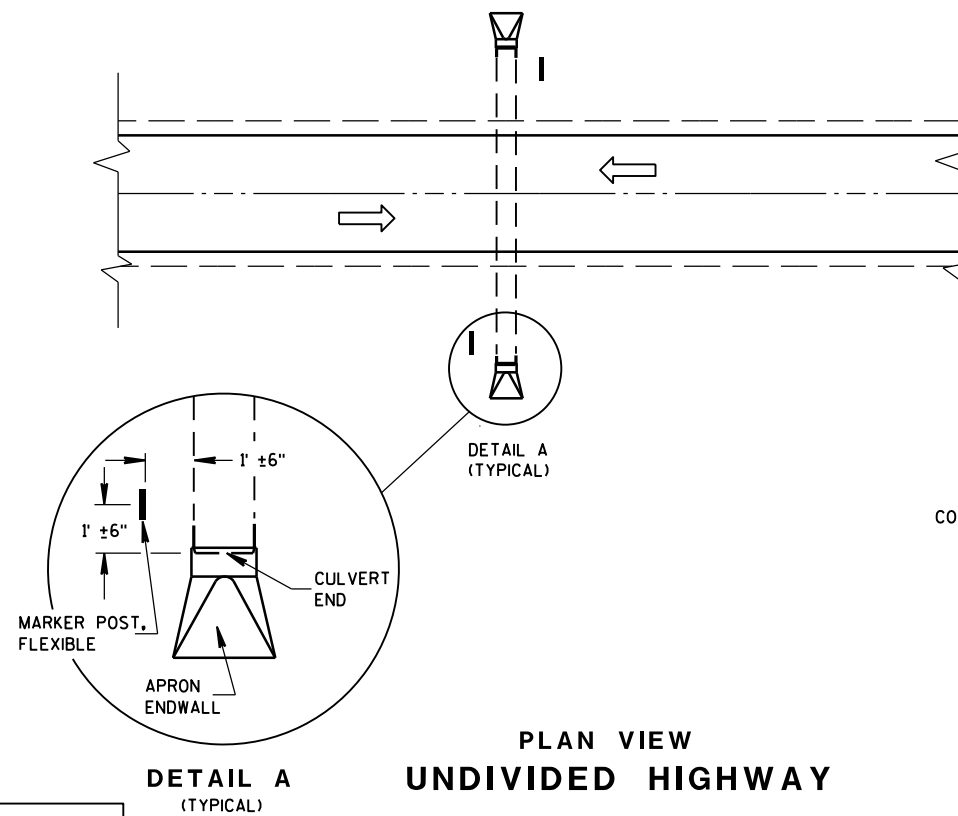
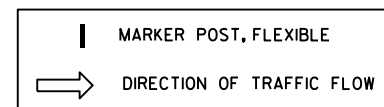
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017
DATE
FHWA

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR



PLAN VIEW
DIVIDED HIGHWAY

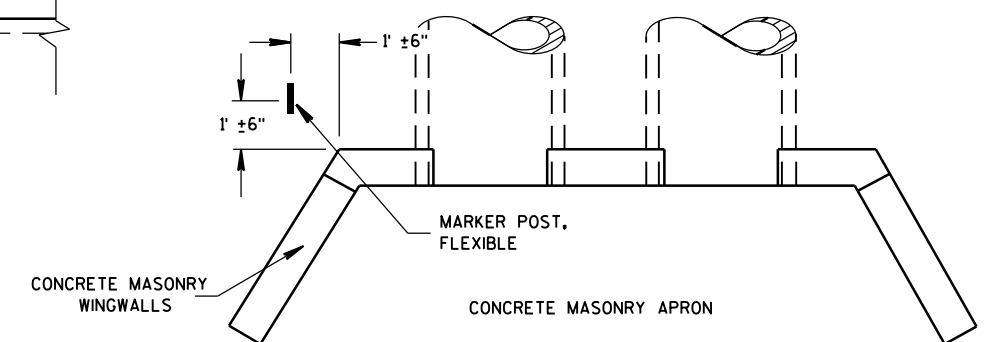


PLAN VIEW
UNDIVIDED HIGHWAY

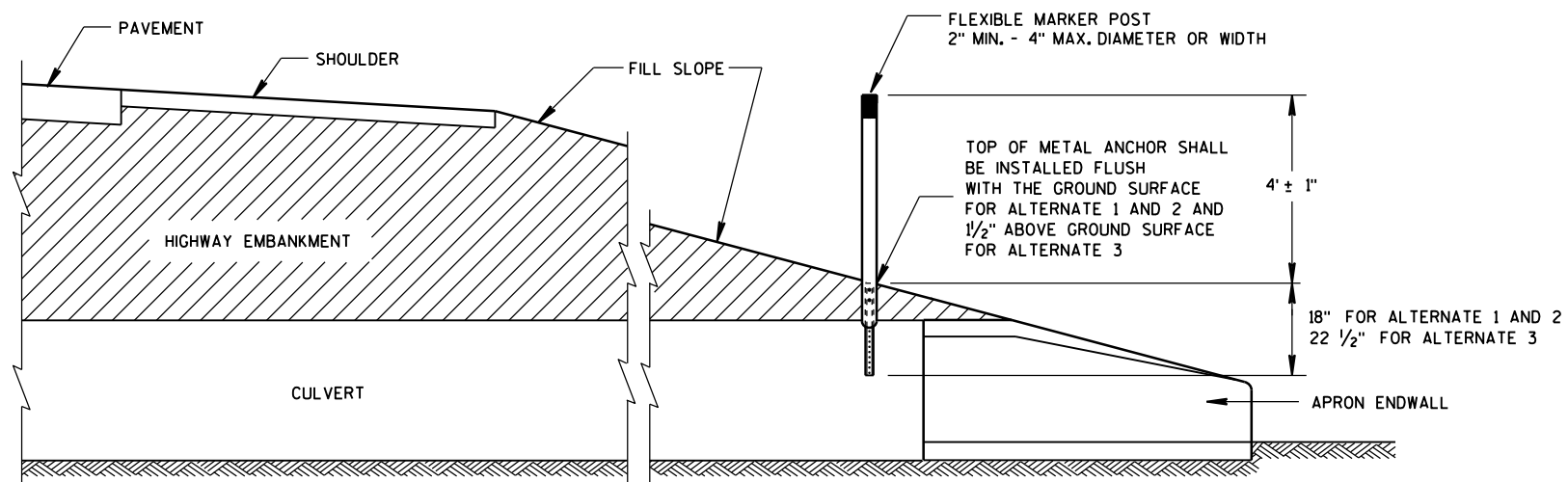
FLEXIBLE MARKER POST LOCATION

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



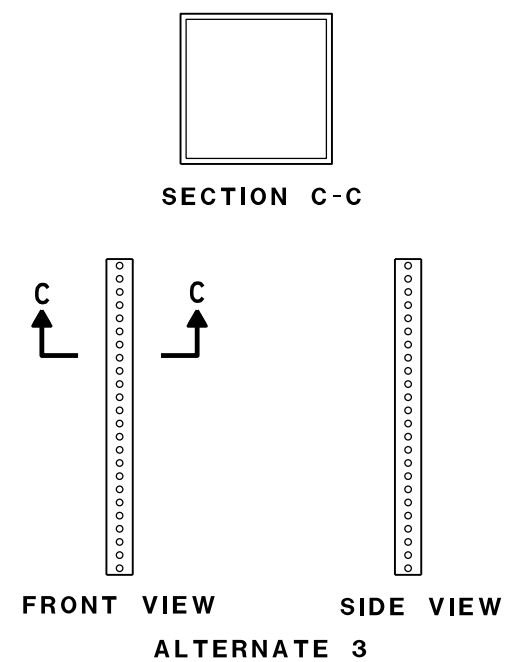
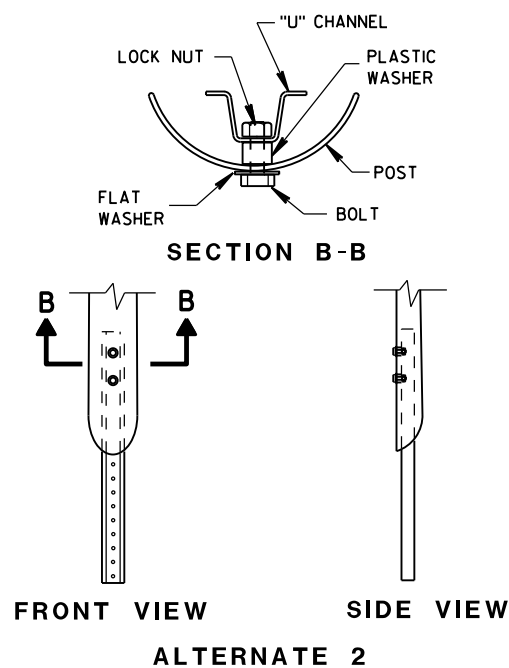
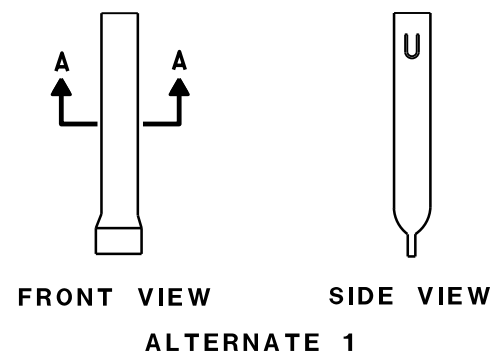
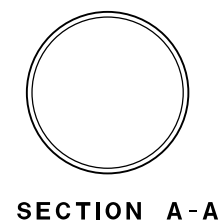
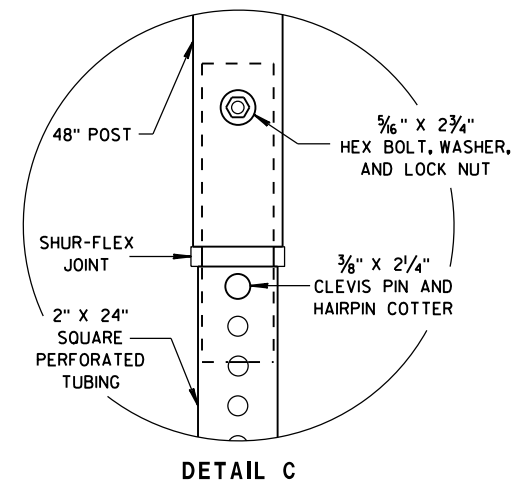
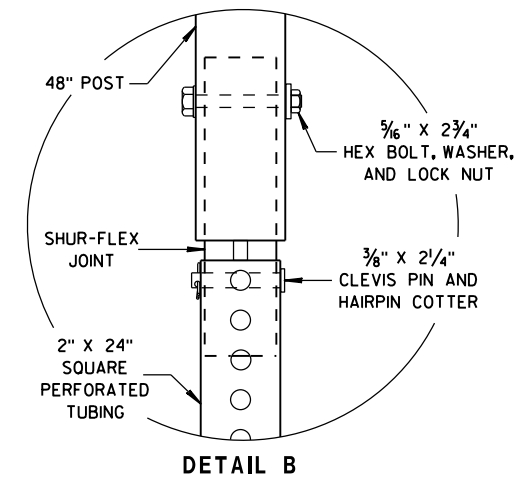
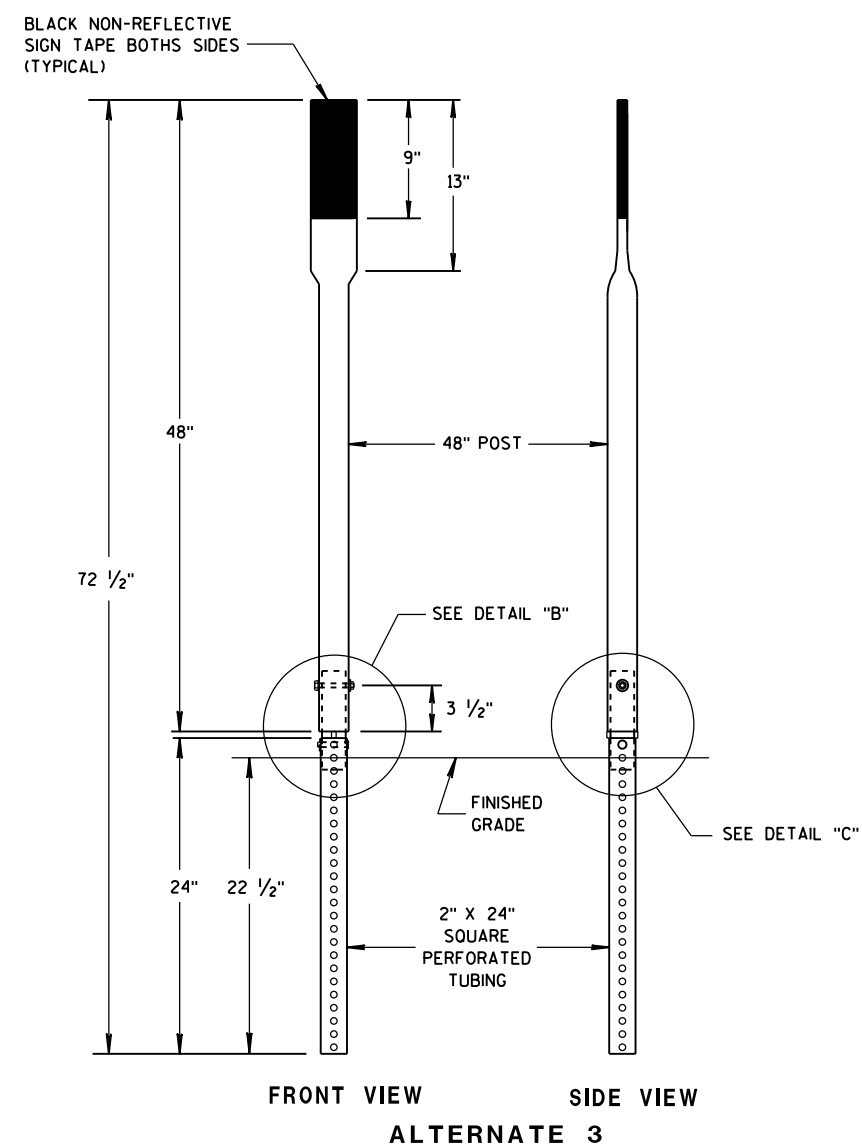
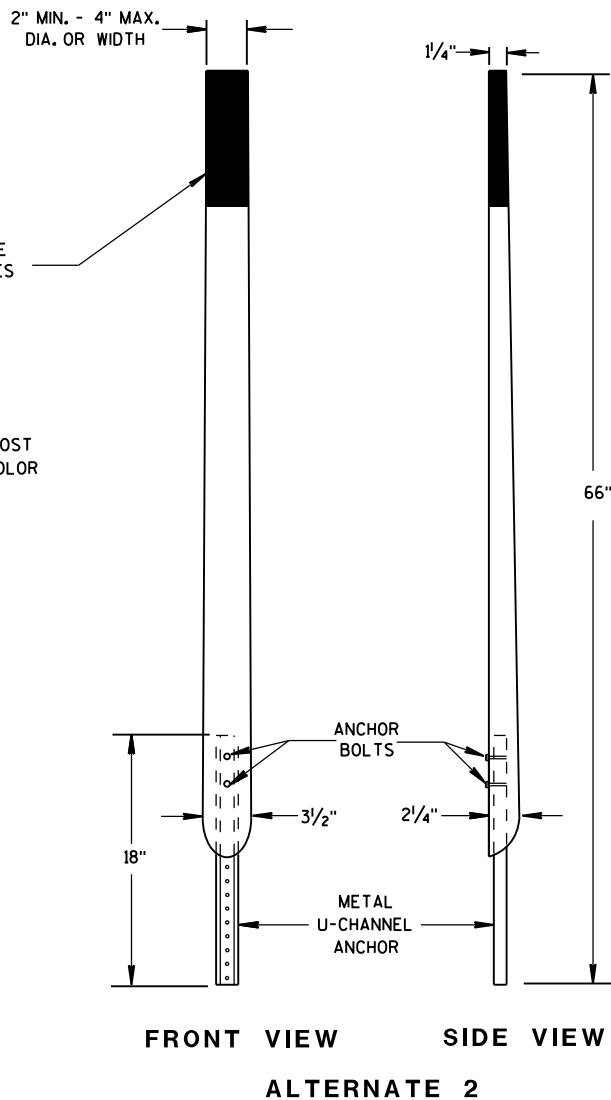
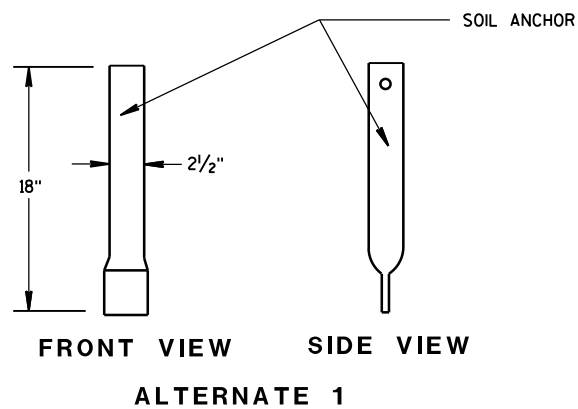
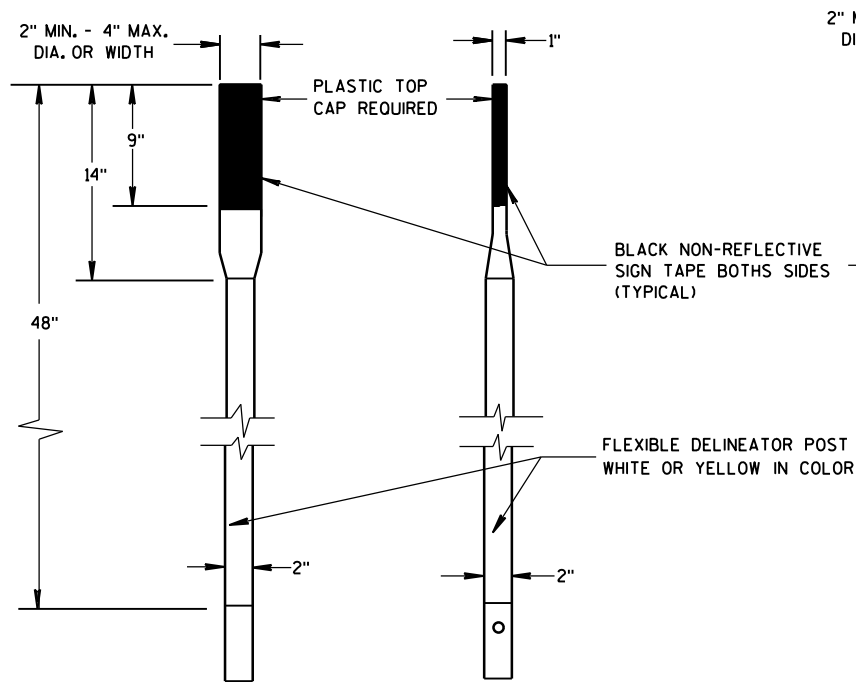
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

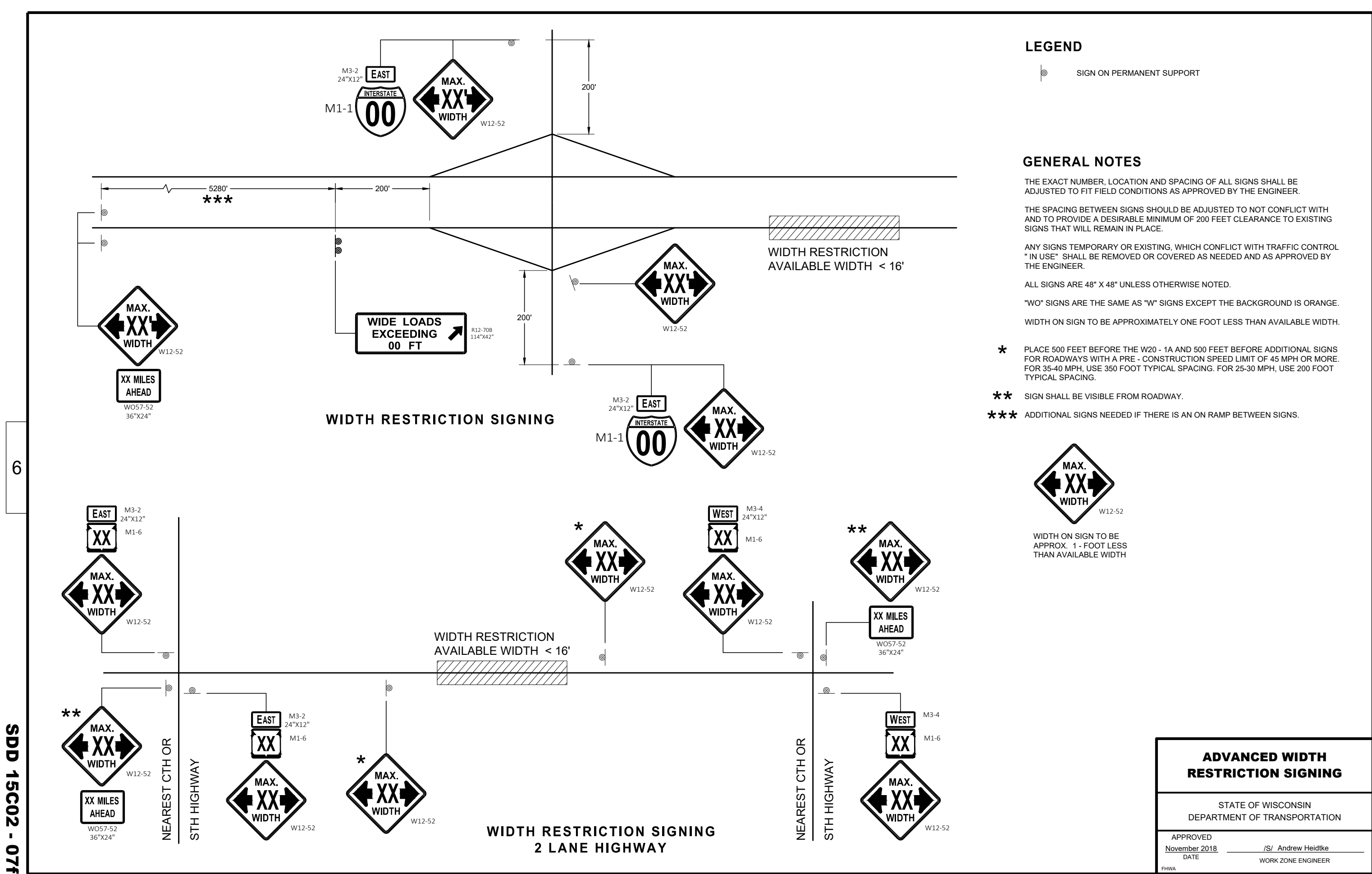
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

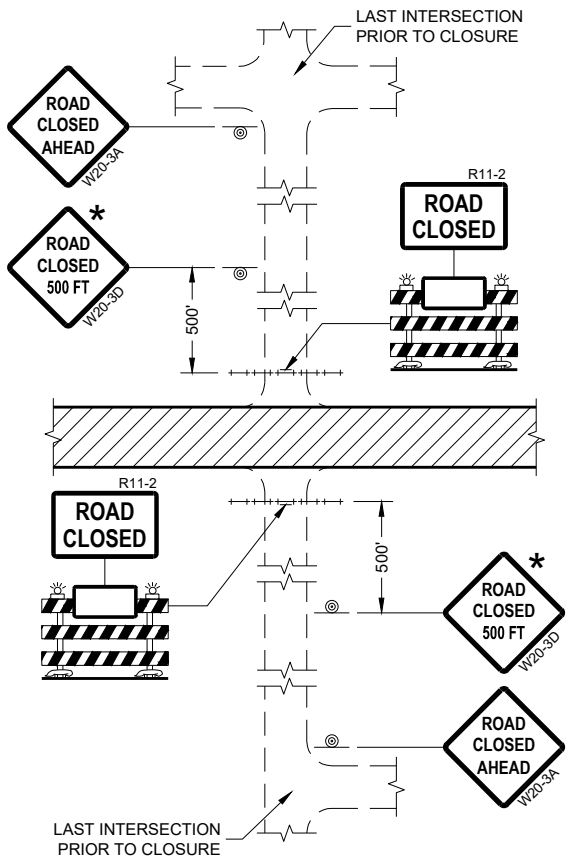


FLEXIBLE MARKER POST FOR CULVERT END

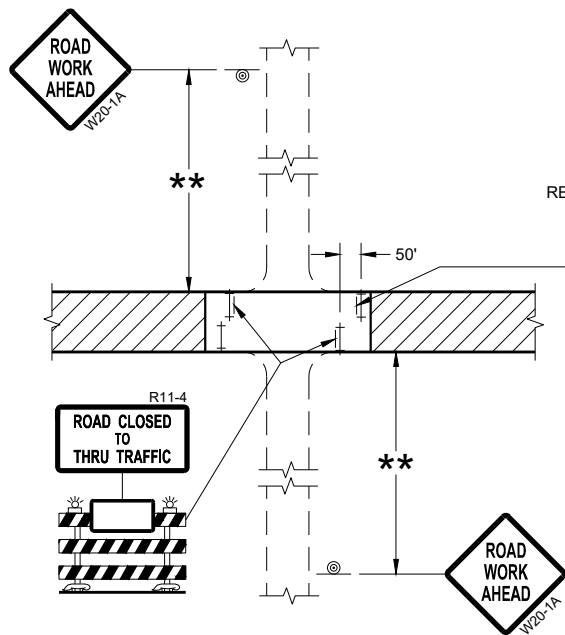
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

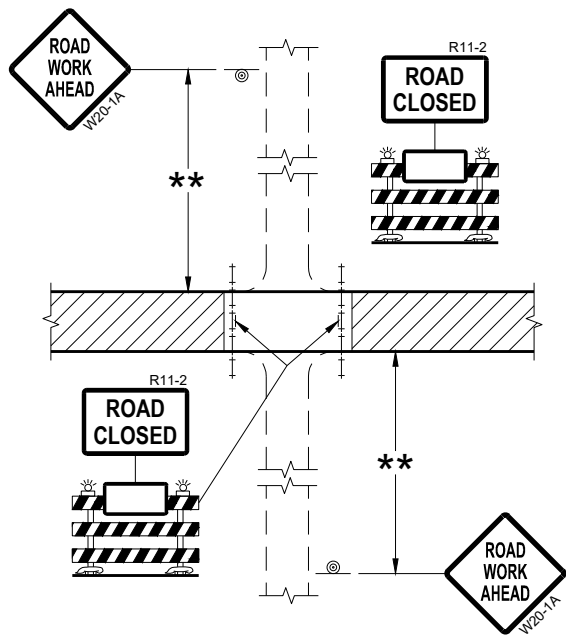




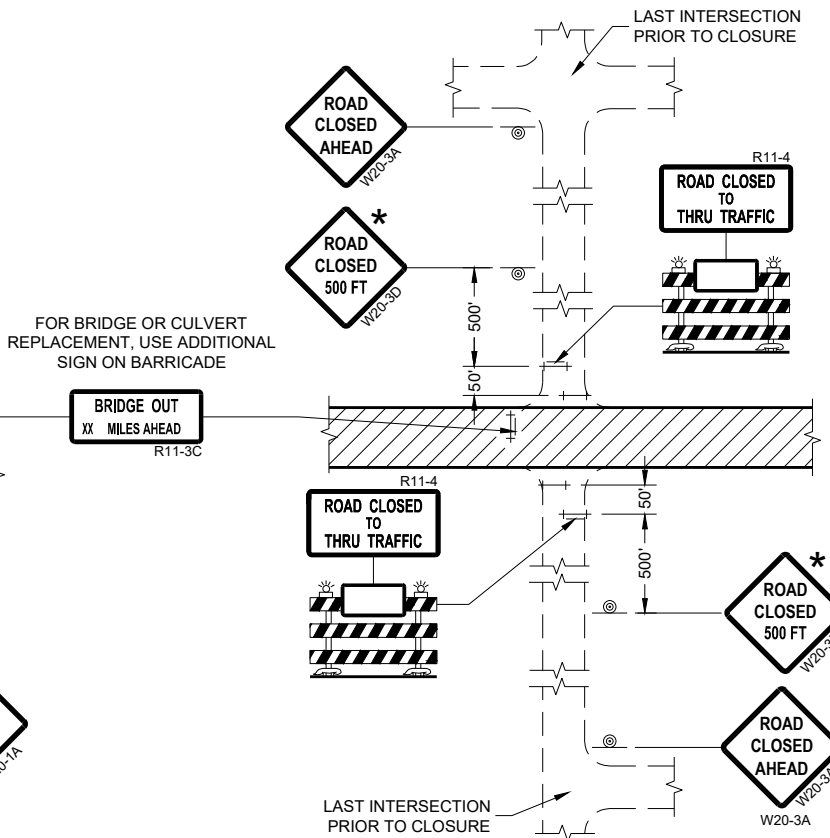
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

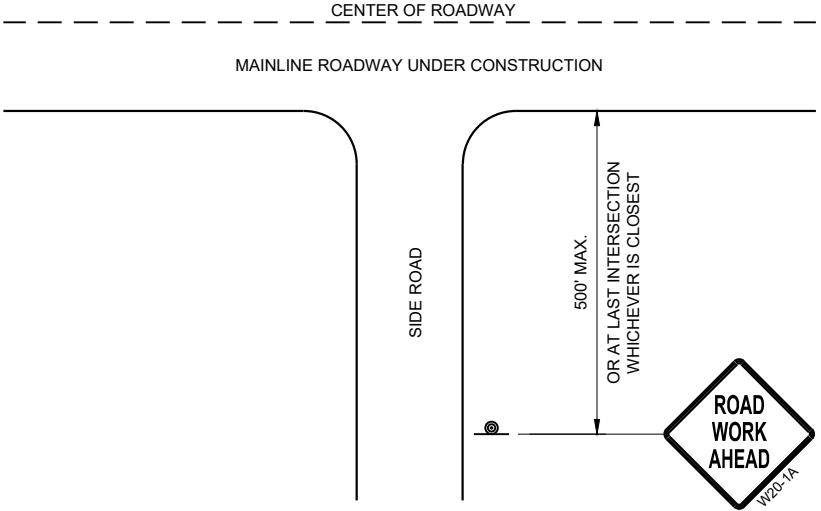
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

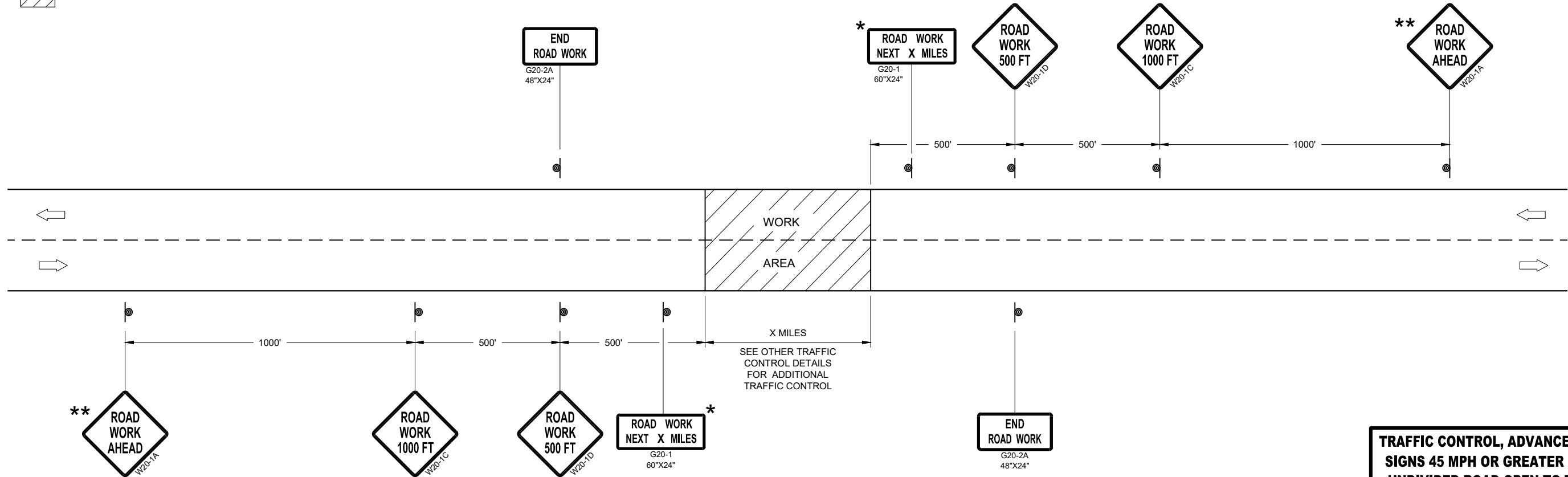
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

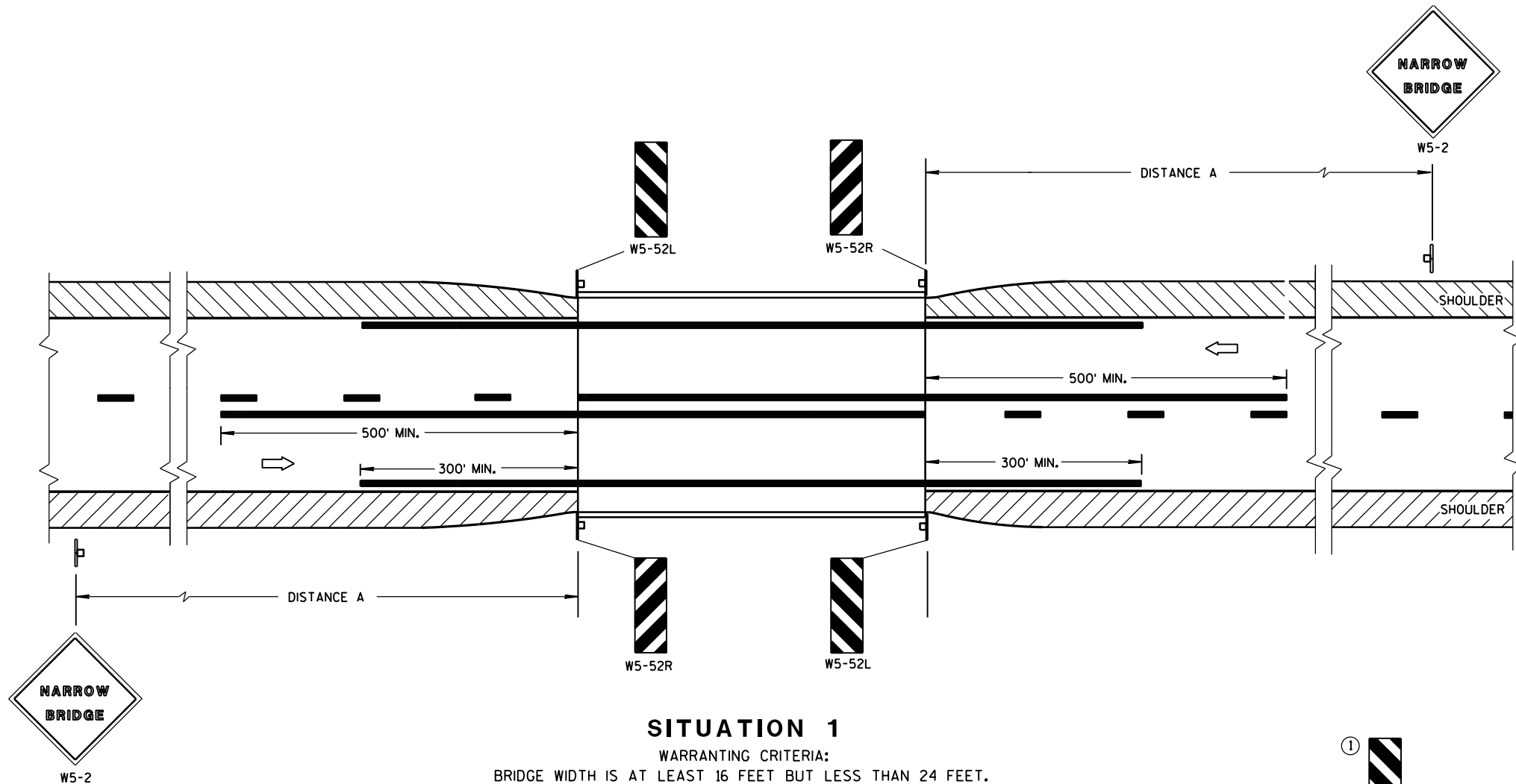


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A"
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

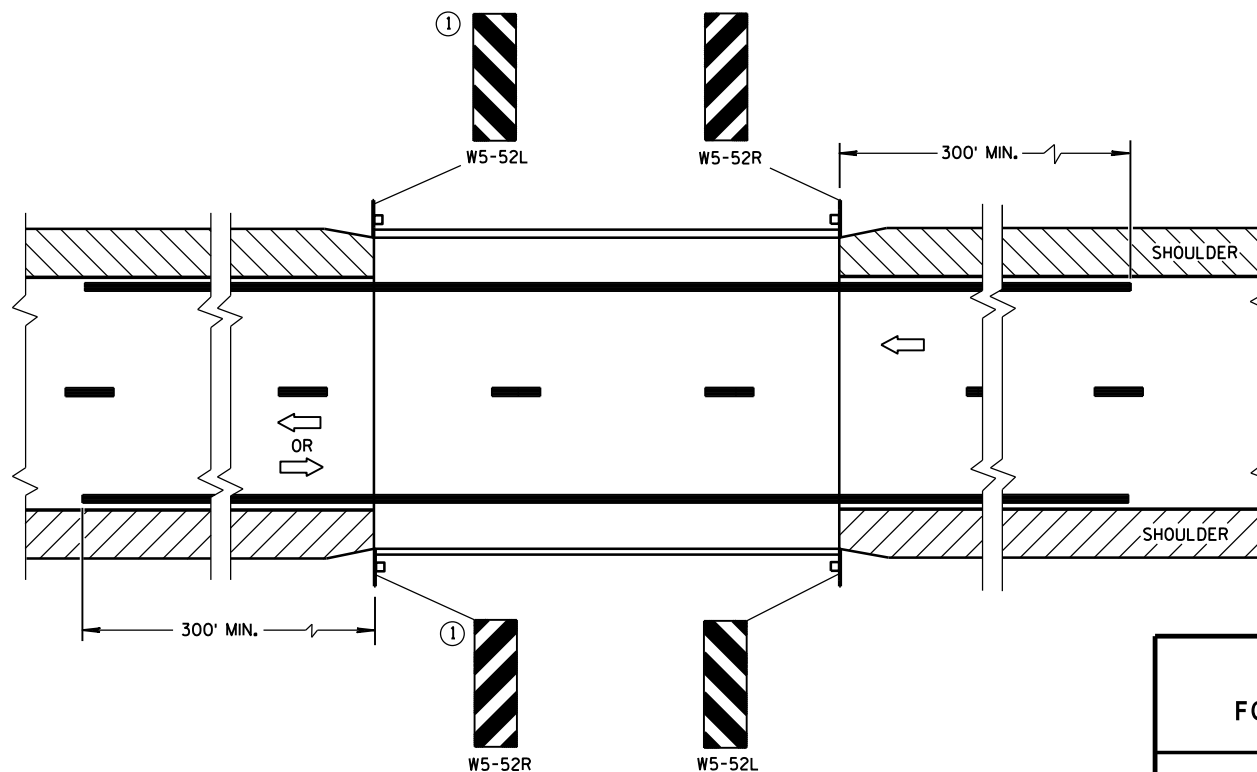
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

SIGNING & MARKING FOR TWO LANE BRIDGES

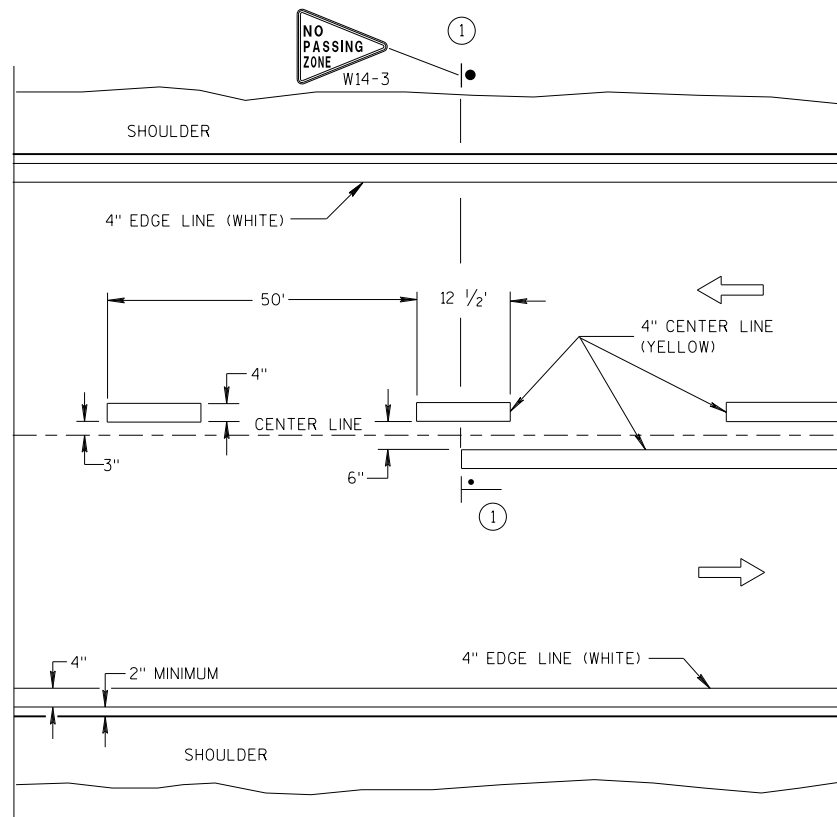
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

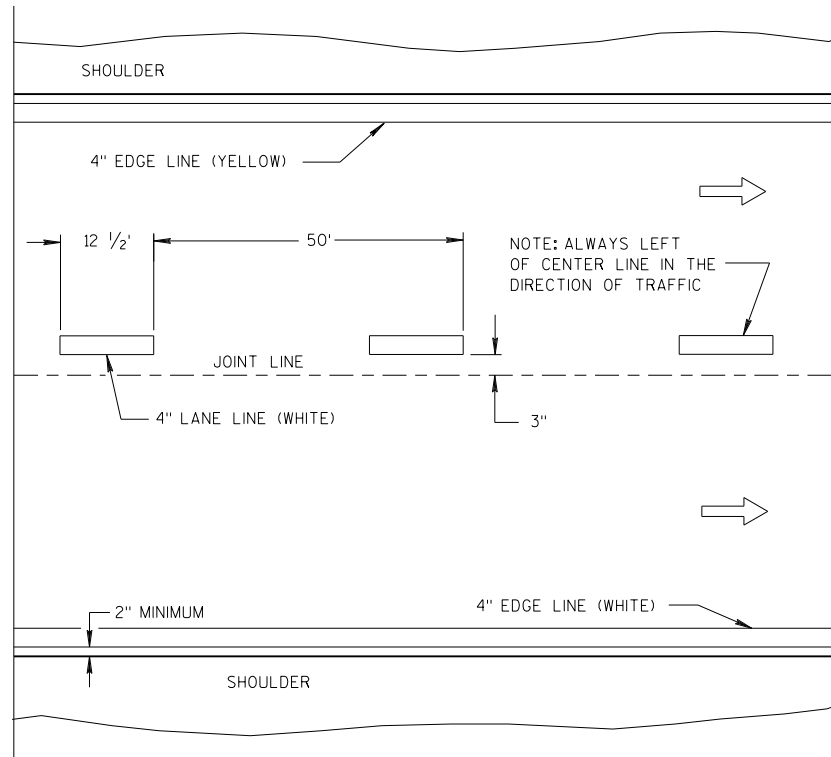
June 2017
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

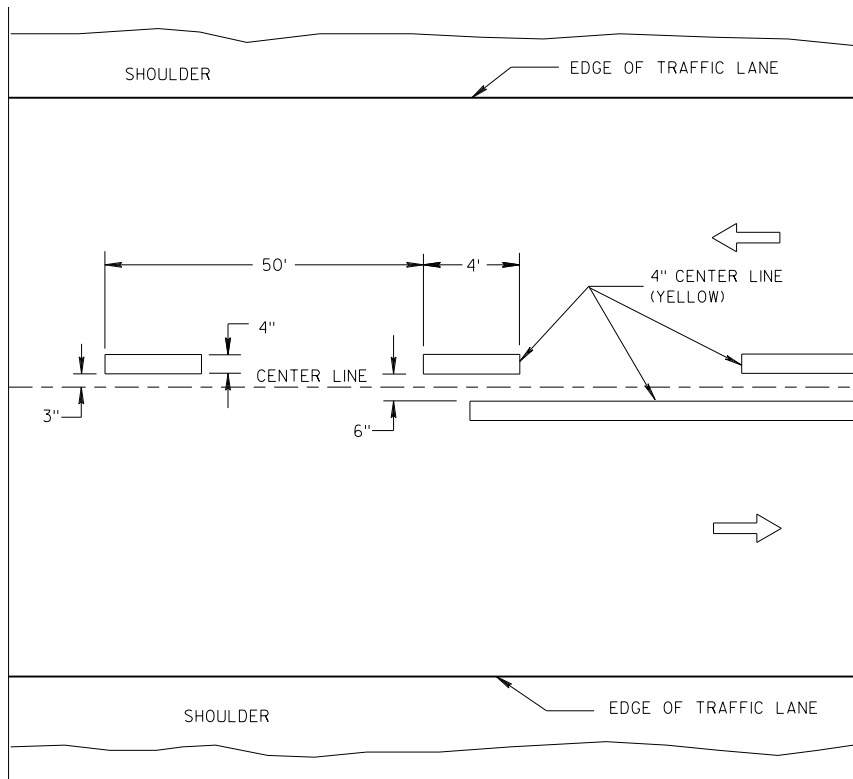


TWO WAY TRAFFIC

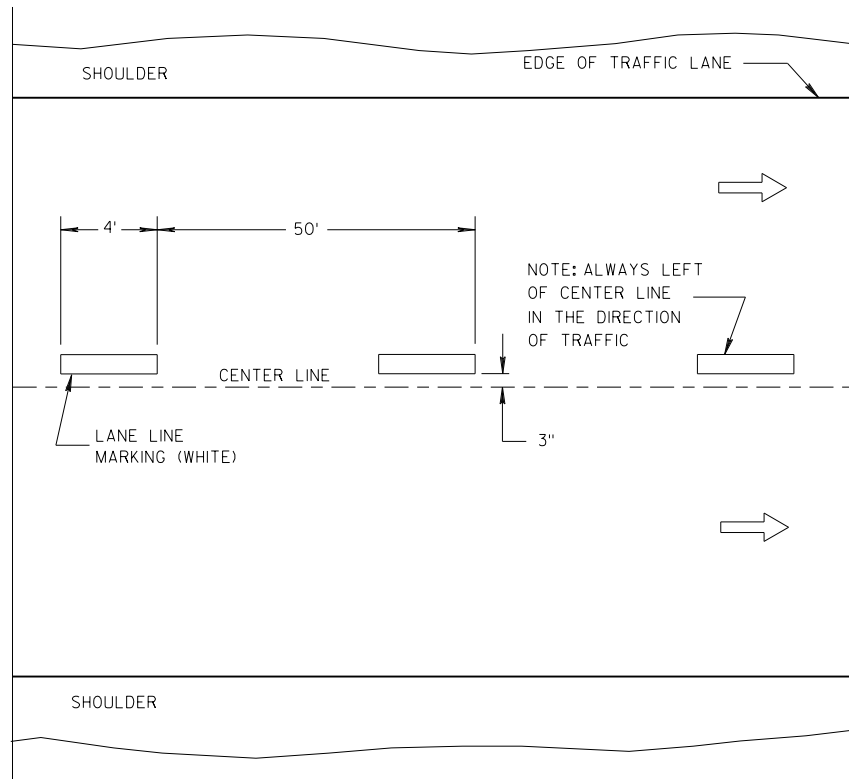


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (→) SHOWS DIRECTION OF TRAVEL

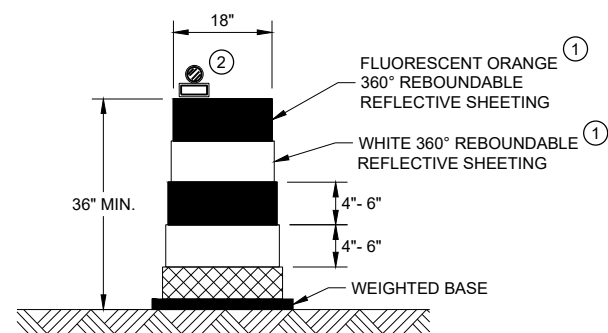
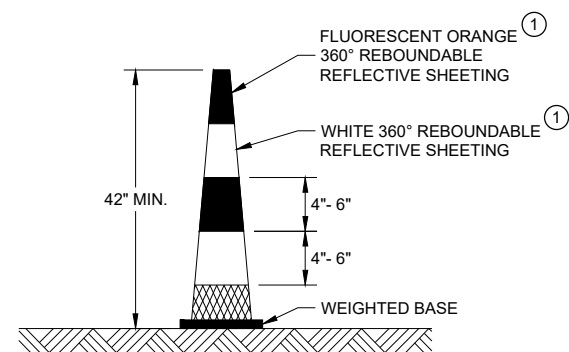
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

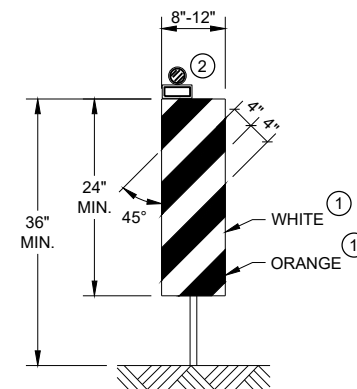
LONGITUDINAL MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

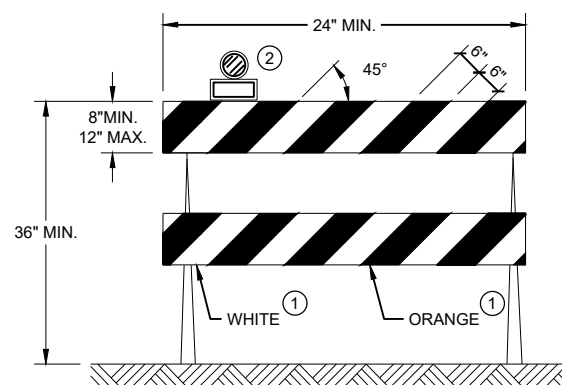
APPROVED
7/2018 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

**DRUM****42" CONE**

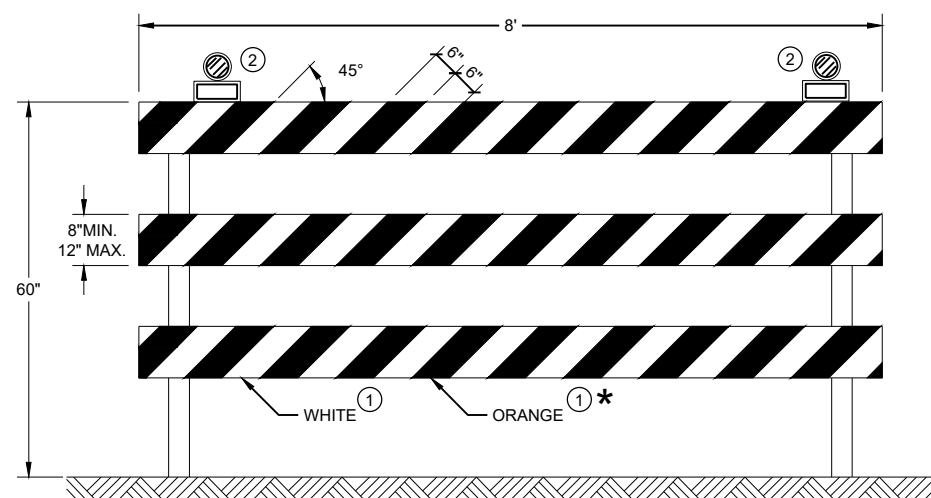
DO NOT USE IN TAPERS
 $\frac{1}{2}$ SPACING OF DRUMS

**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO
 THE TRAFFIC SIDE FOR CHANNELIZATION.

**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
 MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
 TO THE TRAFFIC SIDE FOR CHANNELIZATION.

**TYPE III BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
 TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.






**CHANNELIZING DEVICES
 DRUMS, CONES, BARRICADES
 AND VERTICAL PANELS**

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED
 June 2017 /S/ Andrew Heidtke
 DATE WORK ZONE ENGINEER

FHWA

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.

① FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.

② SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.

WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.

TEMPORARY PORTABLE RUMBLE STRIPS

UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.

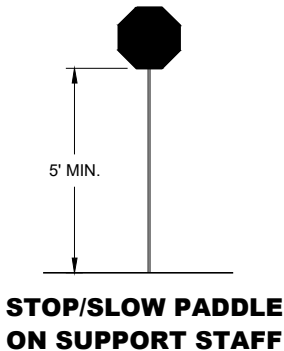
③ EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.

ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.

INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.

PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.

DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

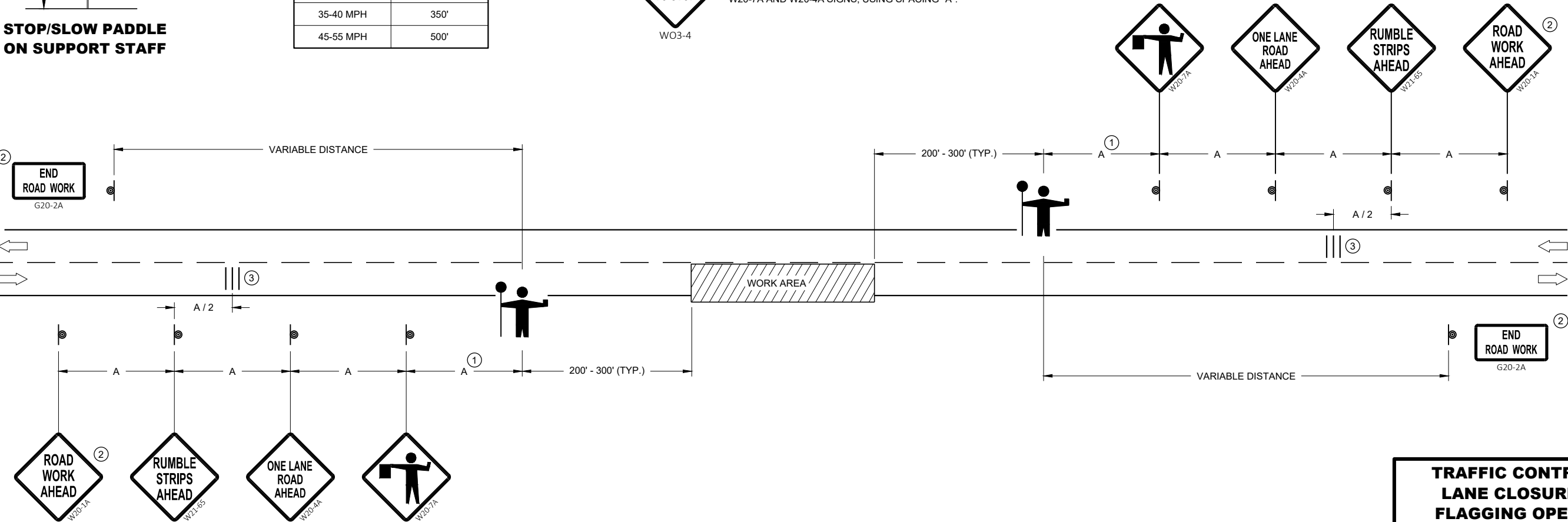


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

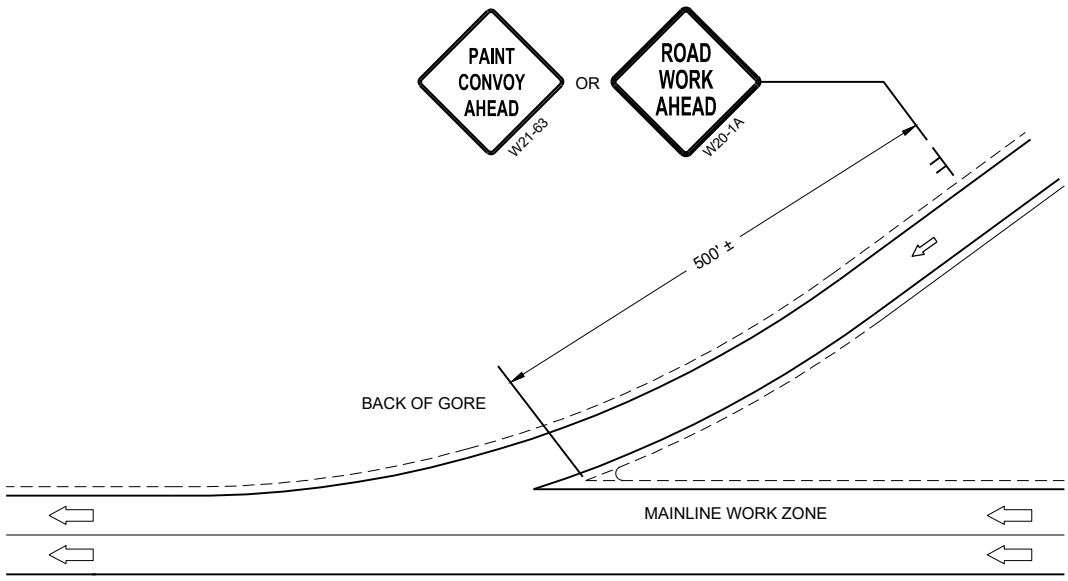
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- V1 MARKING VEHICLE
- V2 SHADOW VEHICLE
- V3 TRAIL VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW PANEL (MERGE)
- FLASHING ARROW PANEL (CAUTION)



GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

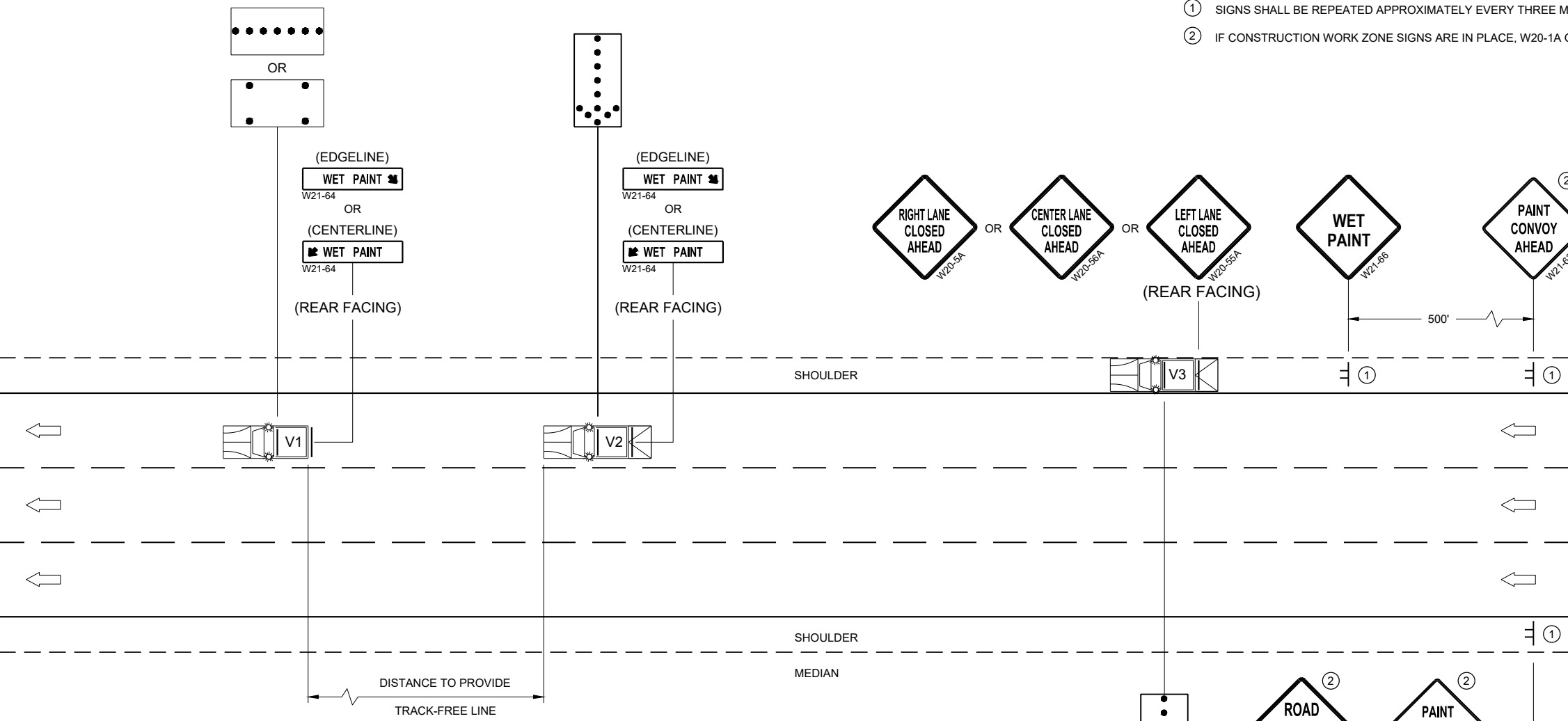
IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM HEIGHT OF 18" FOR WET PAVEMENT MARKINGS

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY ON RAMP.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.

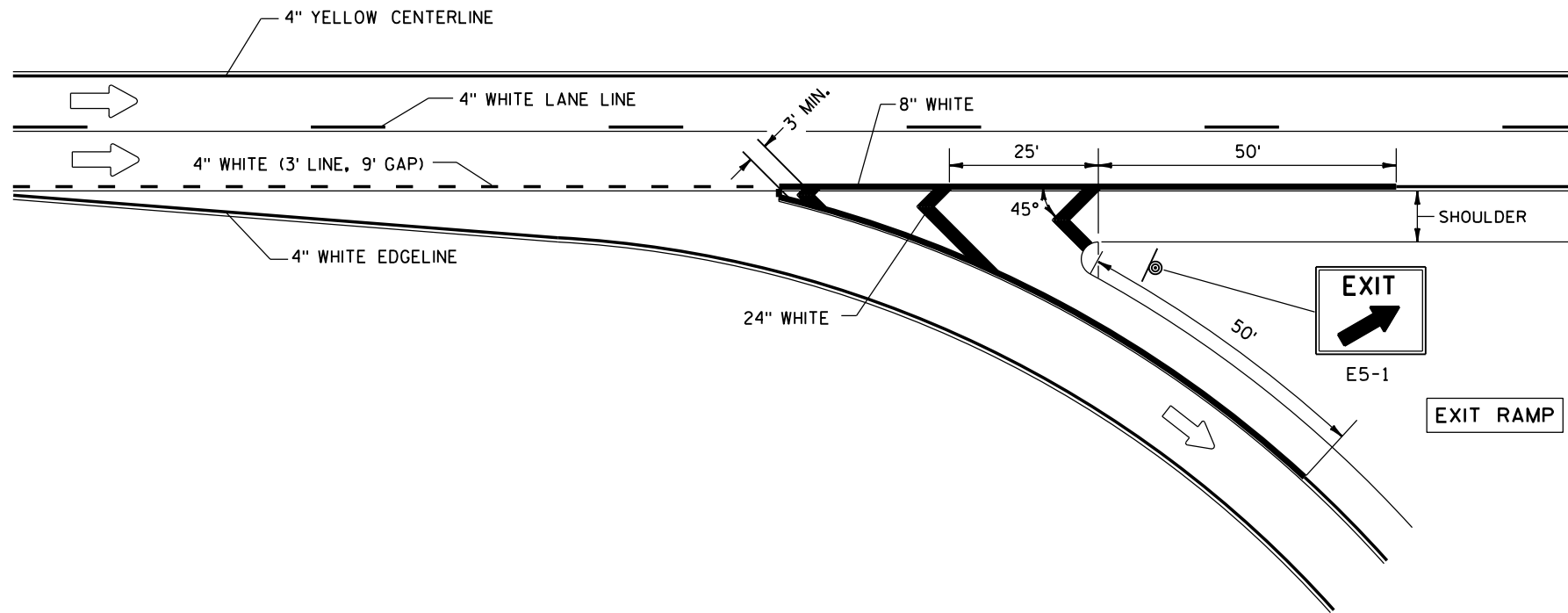


MOVING PAVEMENT MARKING OPERATIONS
MULTILANE DIVIDED ROADWAY

MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Andrew Heidtke
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FHWA



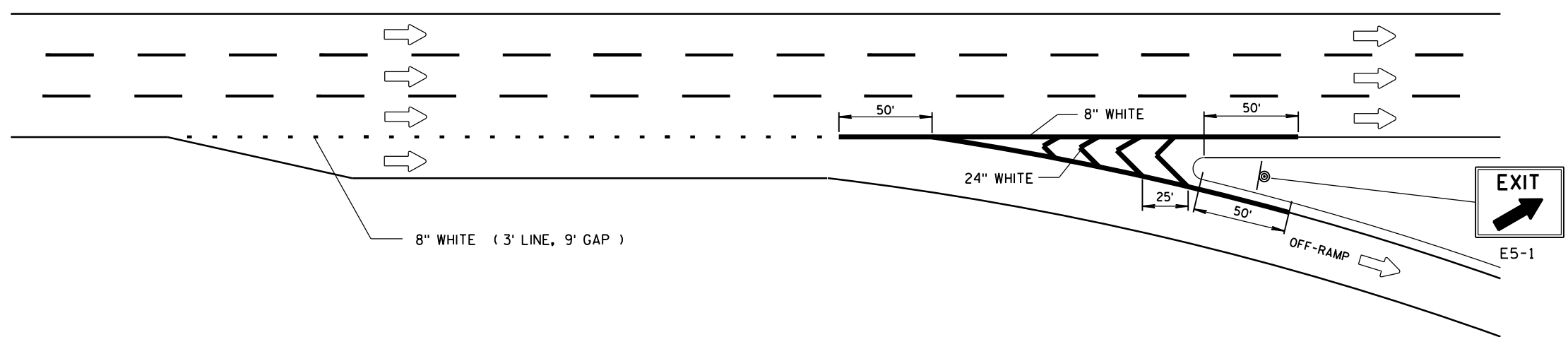
GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

- DIRECTION OF TRAVEL
- SIGN ON PERMANENT SUPPORT

PAVEMENT MARKING FOR EXIT RAMP



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT-RAMP

PAVEMENT MARKING
(RAMPS AND GOES)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

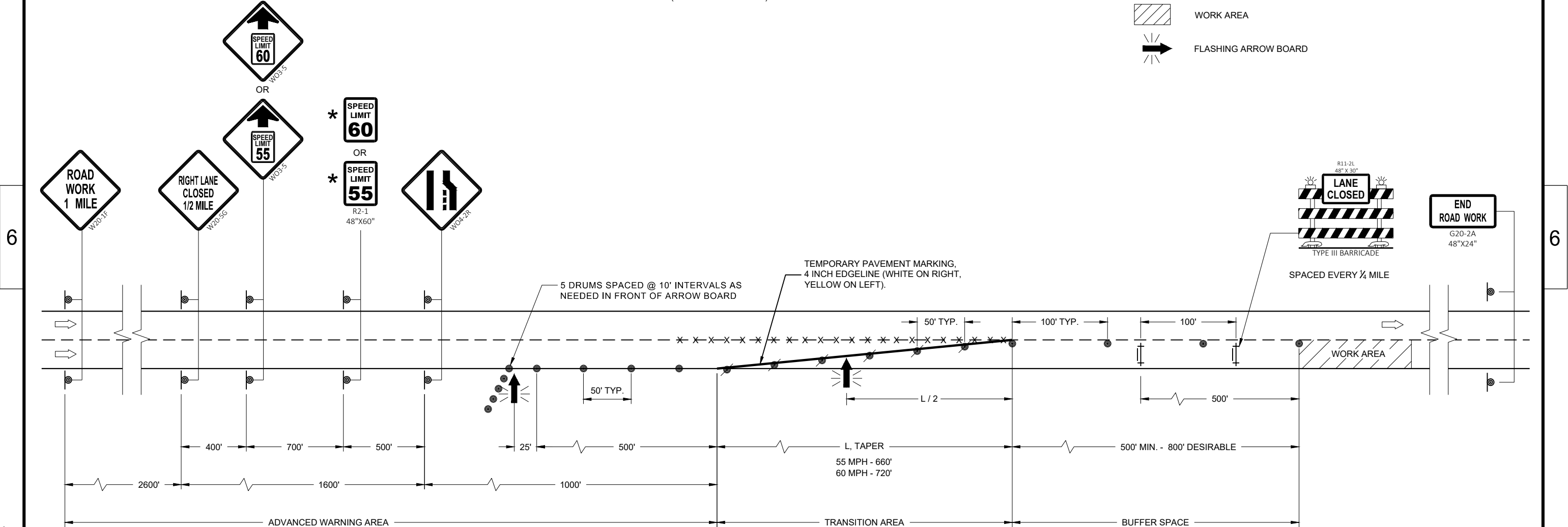
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD



TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED November 2018 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

SDD 15D12 - 07b

SDD 15D12 - 07b

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

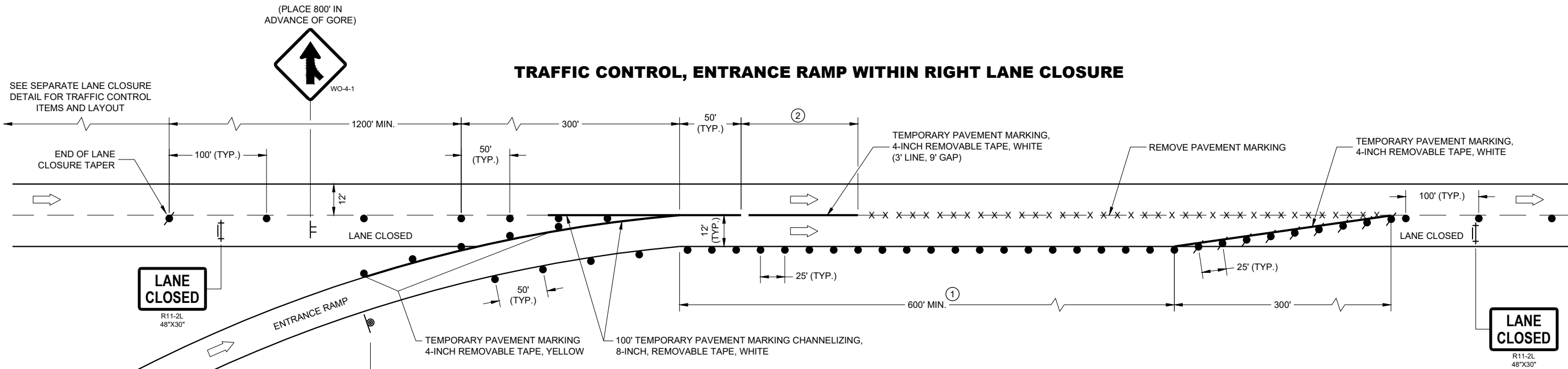
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE



PARALLEL EXIT RAMP

TRAFFIC CONTROL,
PARALLEL ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGS, 16" X 16" MIN., ORANGE
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

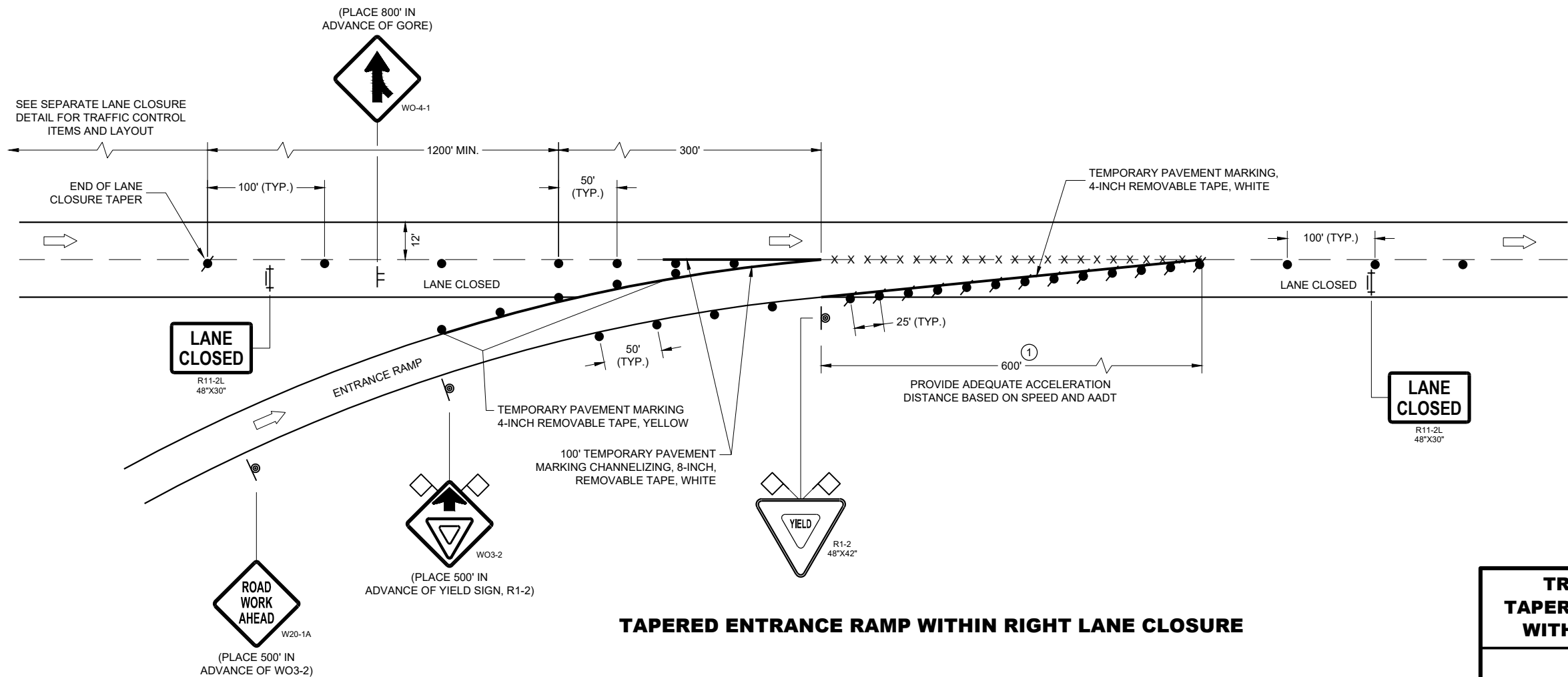
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.






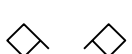

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.



TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE

TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  FLAGS, 16" X 16" MIN., ORANGE
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

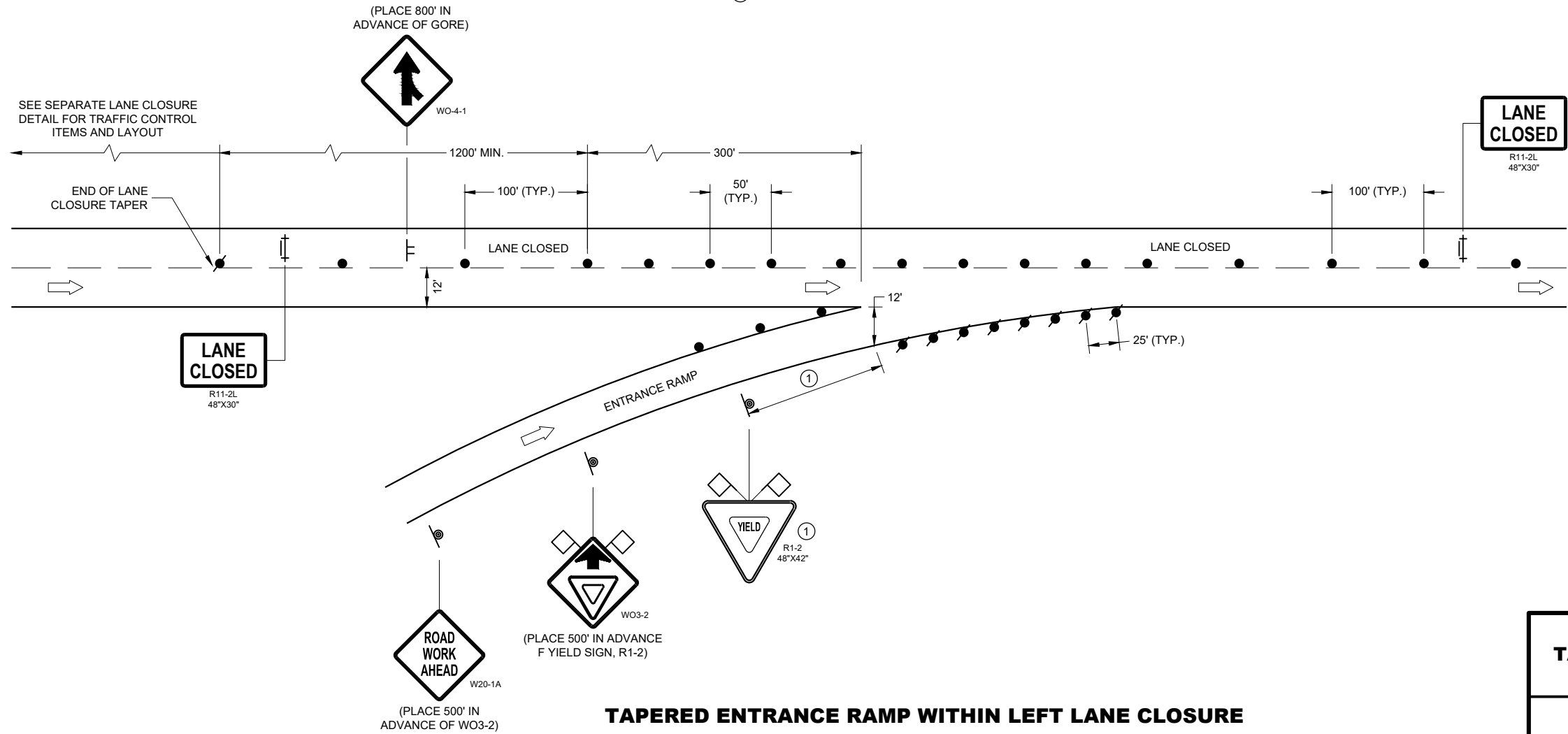
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① PLACE YIELD SIGN TO PROVIDE ADEQUATE SIGHT DISTANCE AND ACCELERATION DISTANCE.










**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

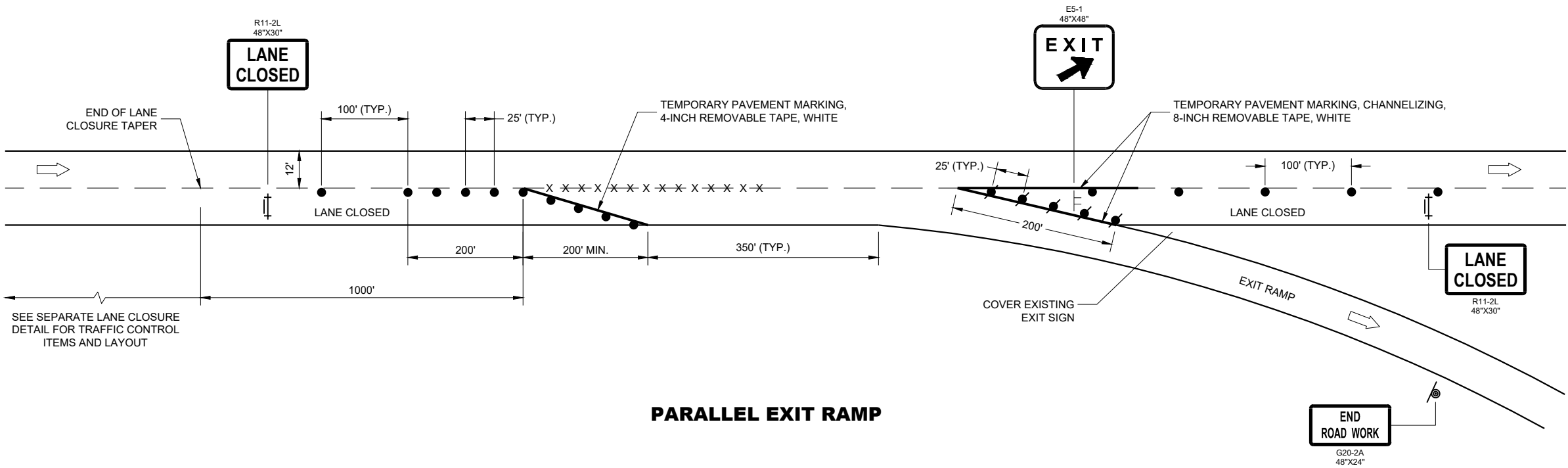
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.



PARALLEL EXIT RAMP

**TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

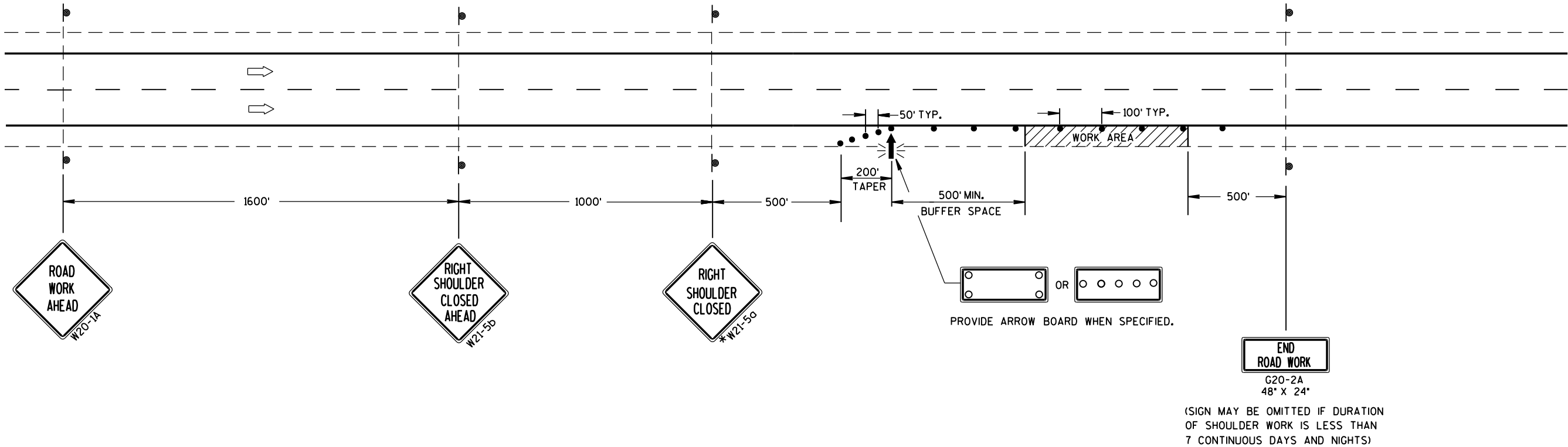
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

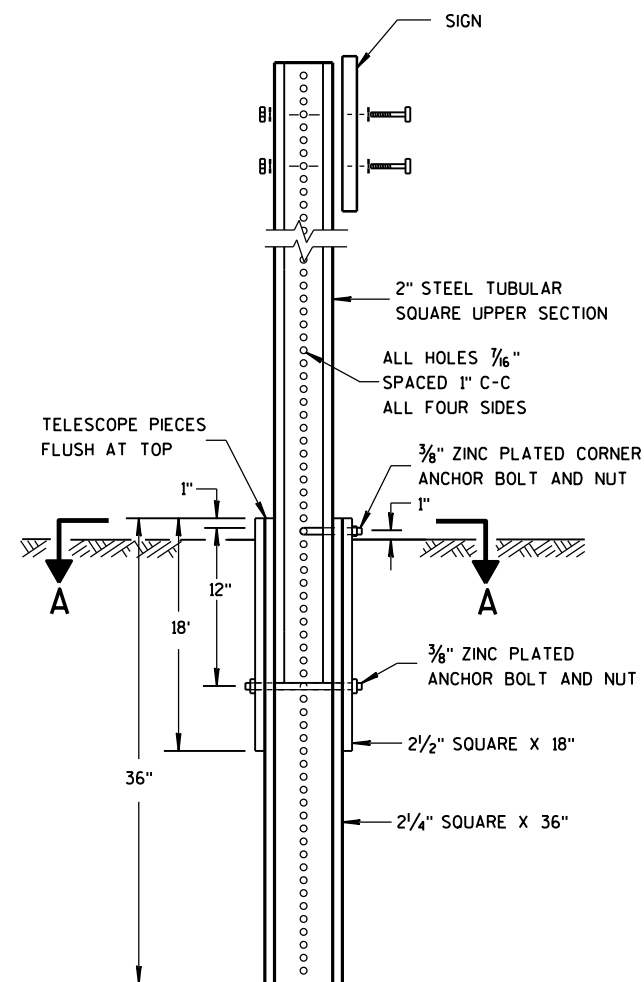
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2016 DATE	/S/ Peter Amakobe Atepe STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER
FHWA	

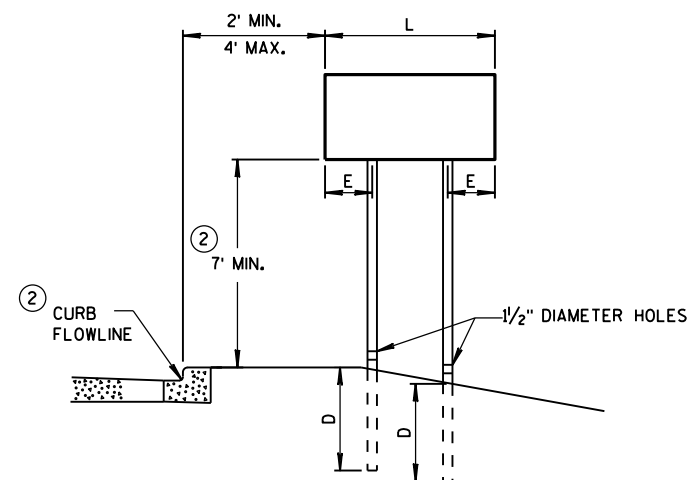
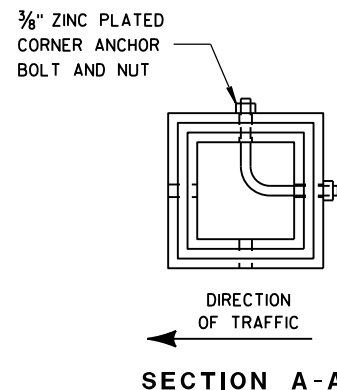


DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

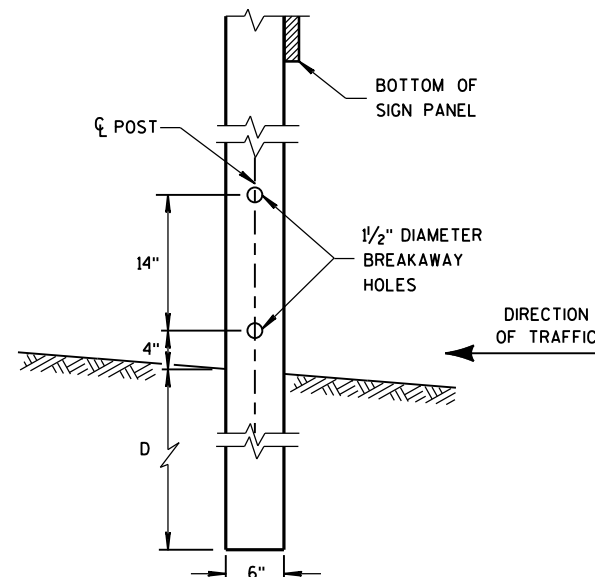


URBAN AREA

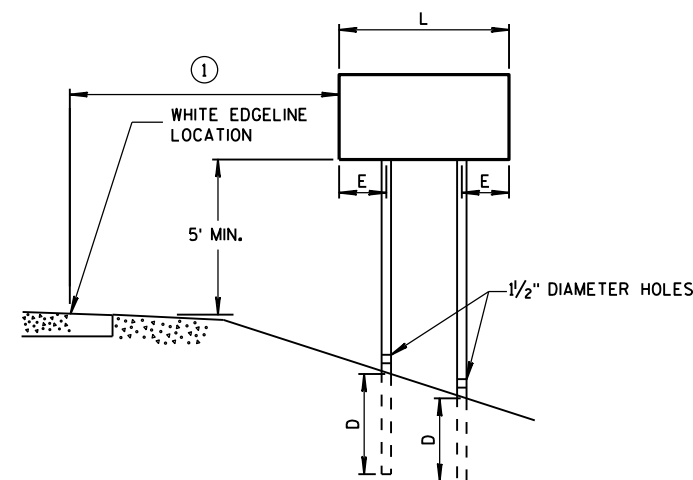
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

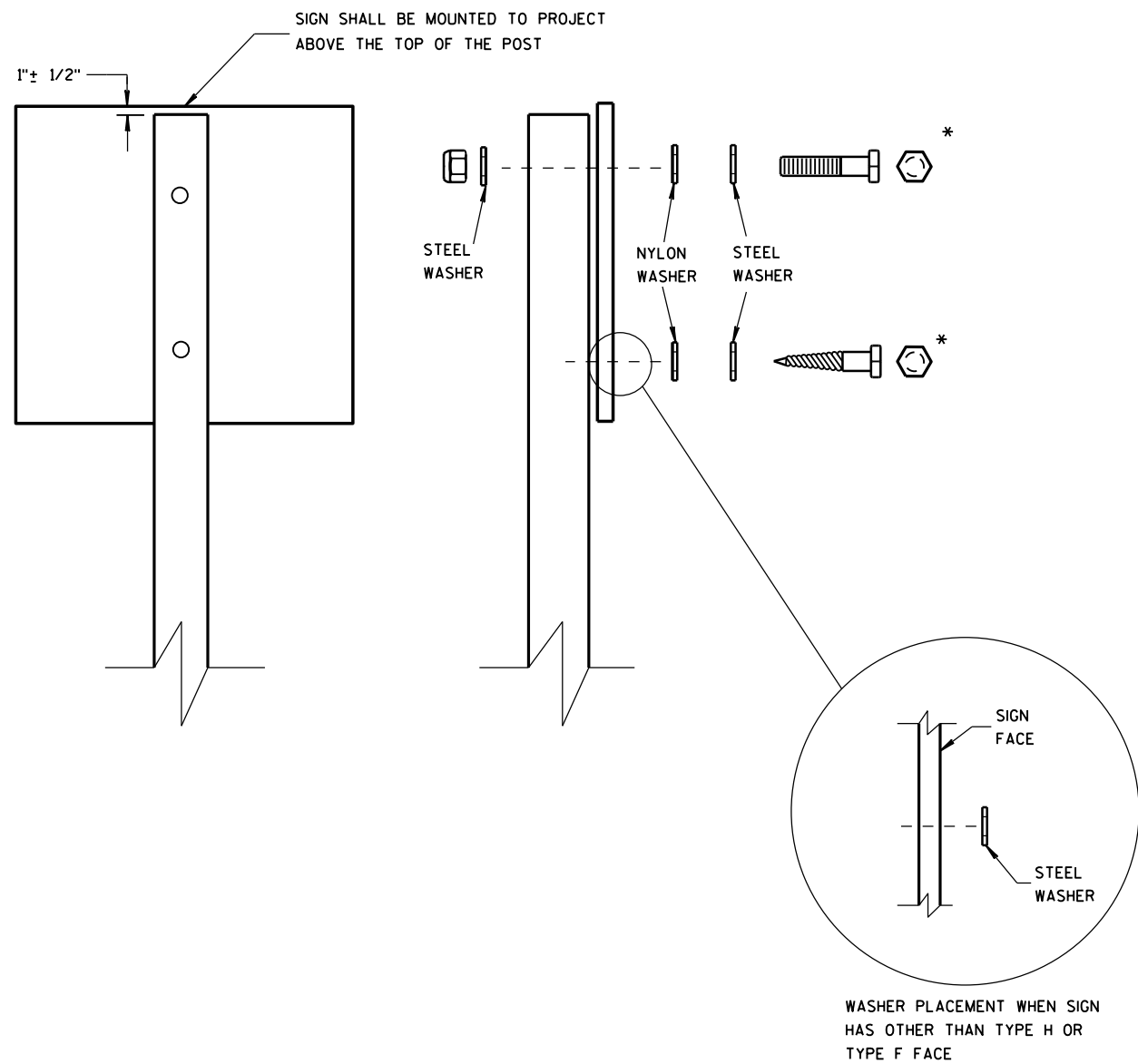
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

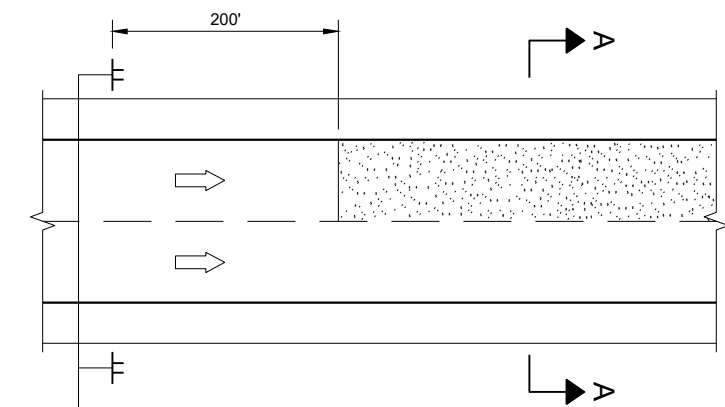
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

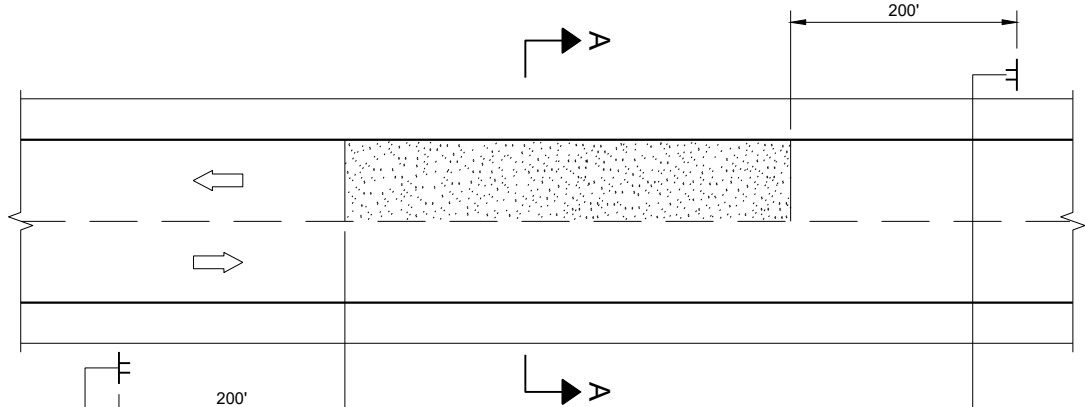
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 - 1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

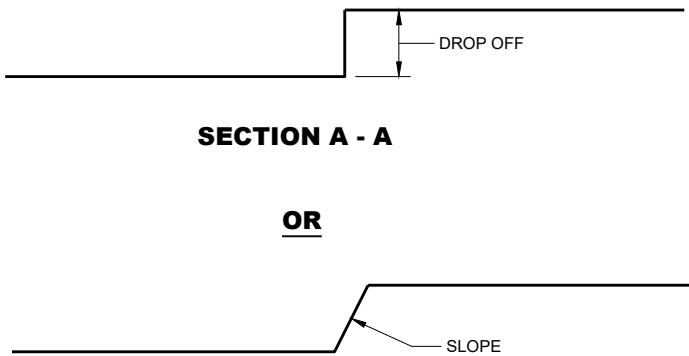
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



MULTI-LANE



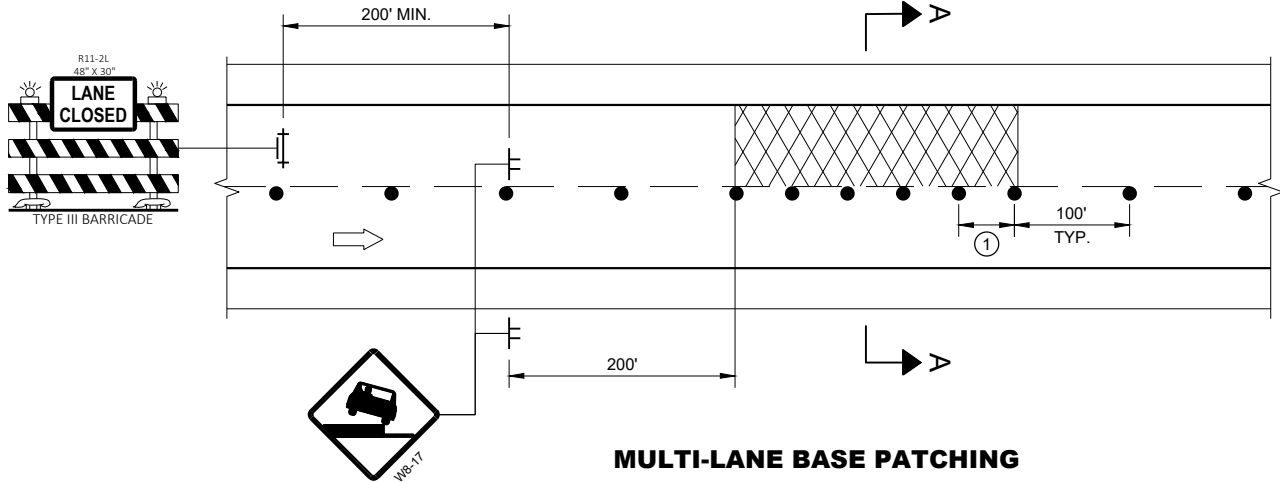
TWO-WAY TWO LANE



SECTION A - A

OR

SECTION A - A



MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

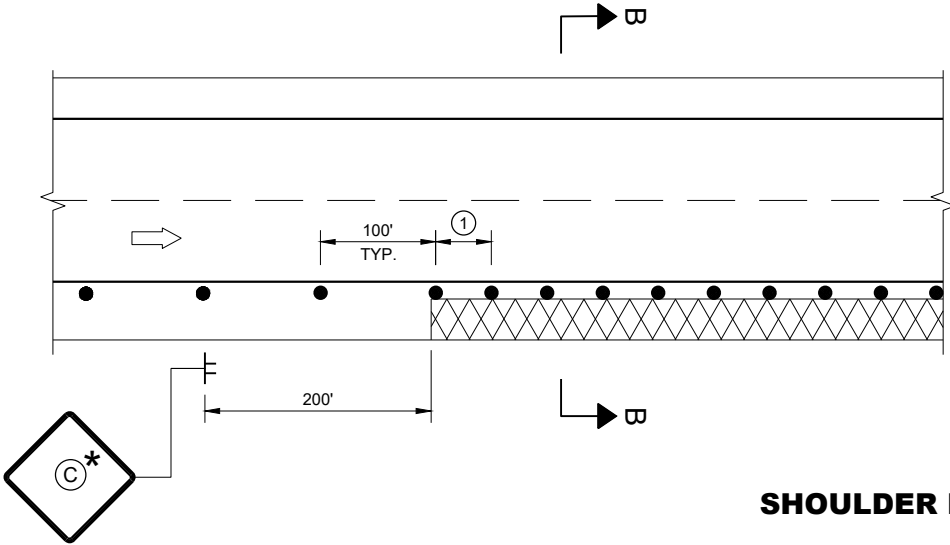
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

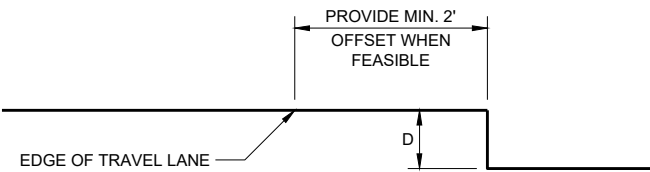
① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- Sign on temporary support
- Traffic control drum
- Type III barricade with attached sign
- Type "A" warning light (flashing)
- Direction of traffic
- Work area with drop-off
- Milled surface



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN C
< 2" WITH A SLOPE STEEPER THAN 3:1	LOW SHOULDER WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	SHOULDER DROP - OFF W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

TRAFFIC CONTROL,
DROP-OFF SIGNING

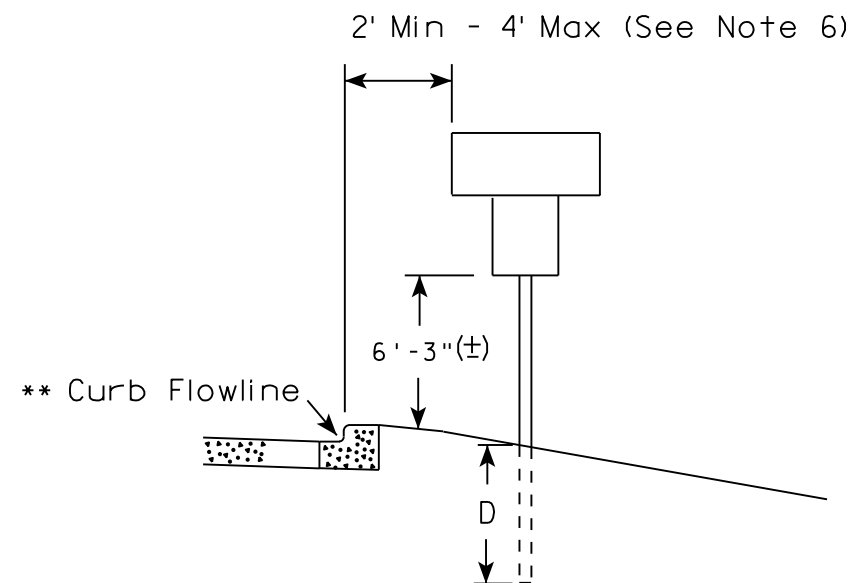
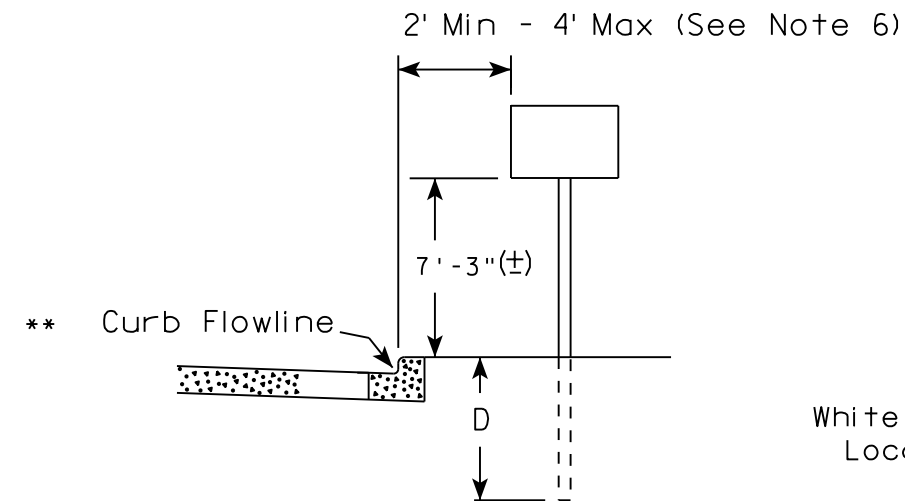
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
March 2018
DATE

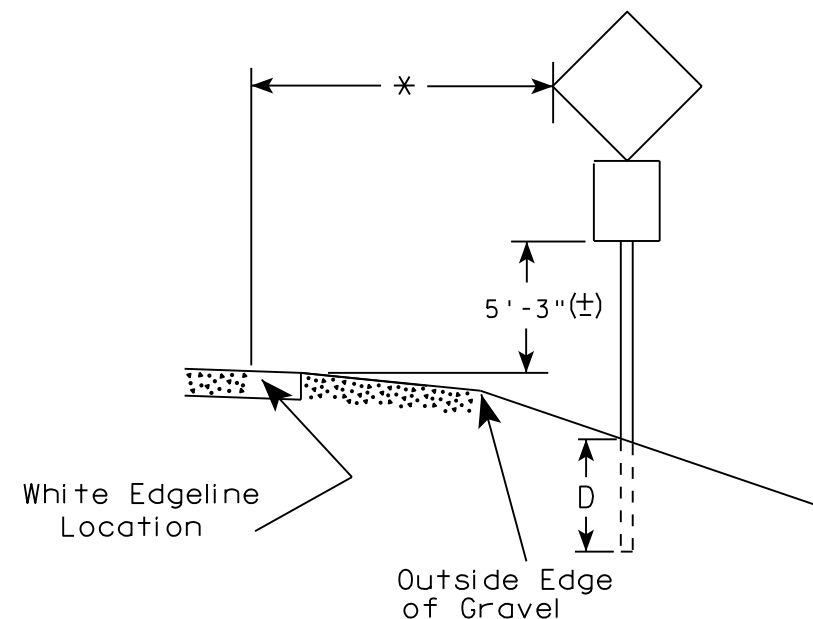
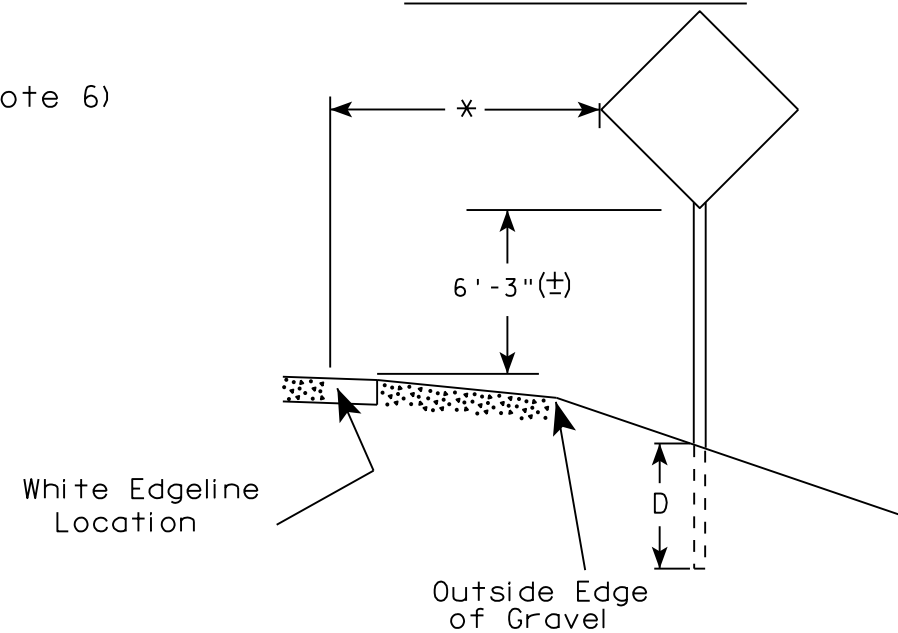
/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies are considered to be one sign for mounting height.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

✱✱ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

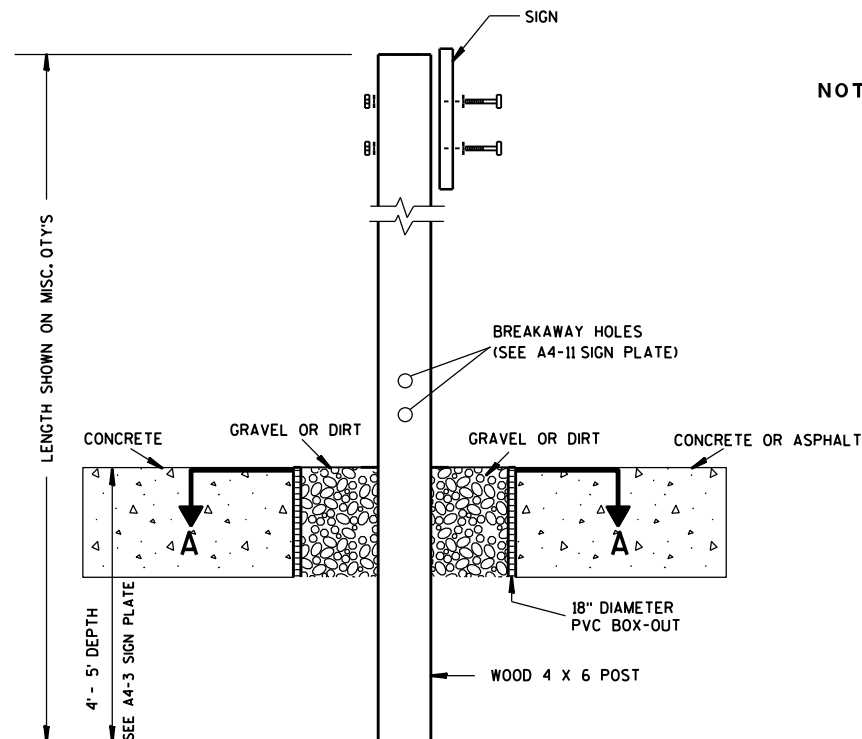
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

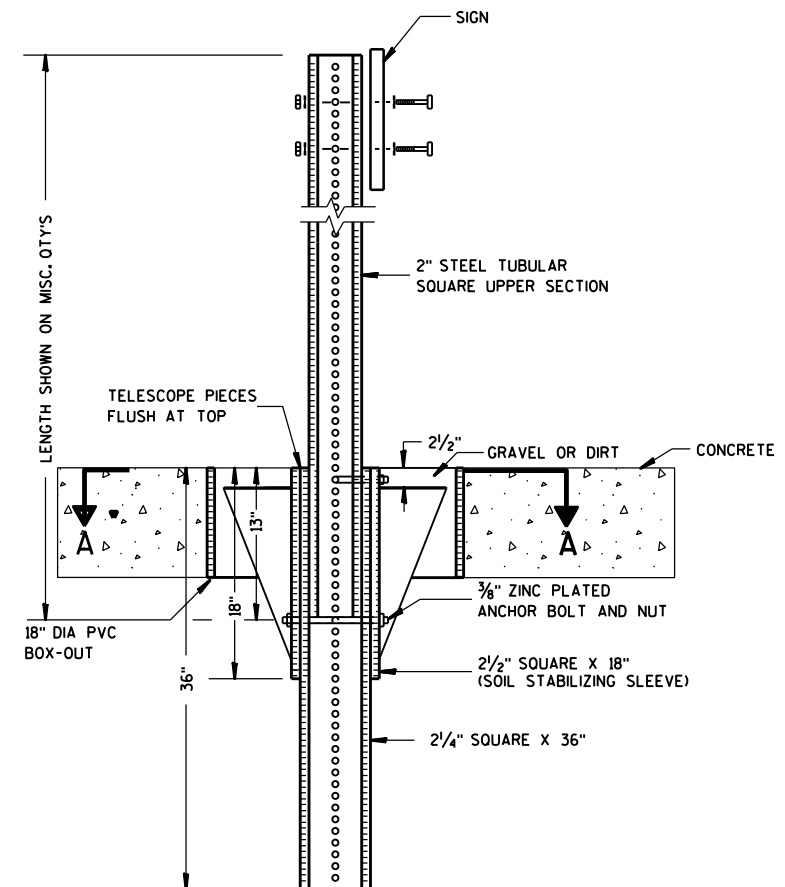
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

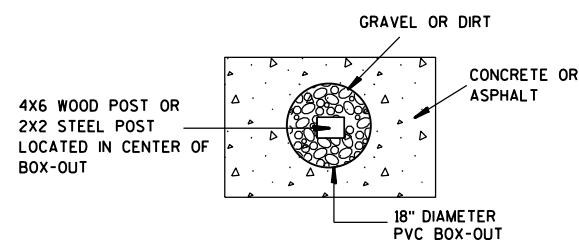
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

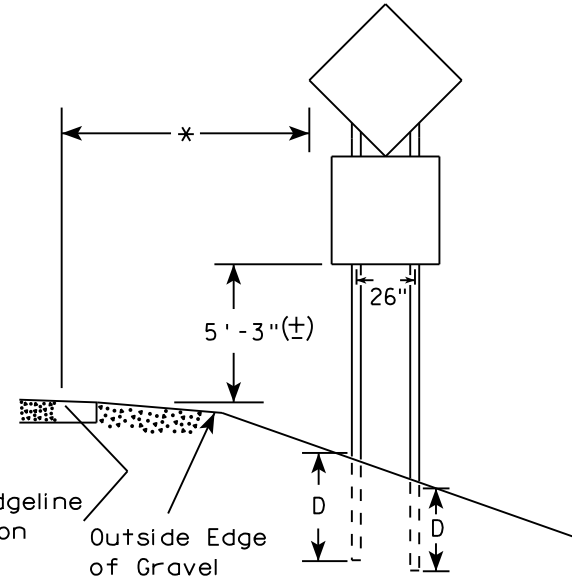
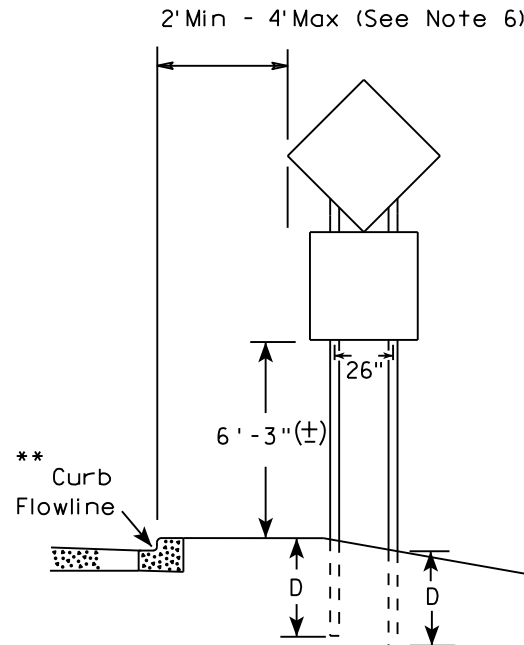
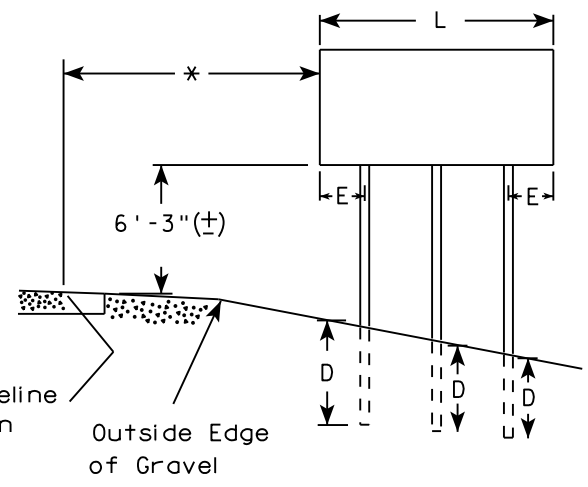
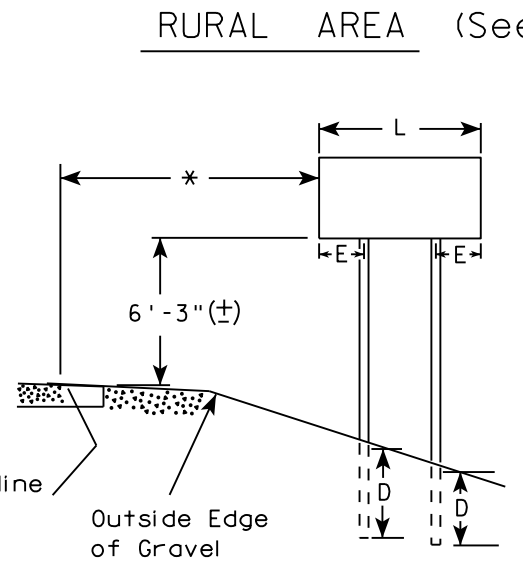
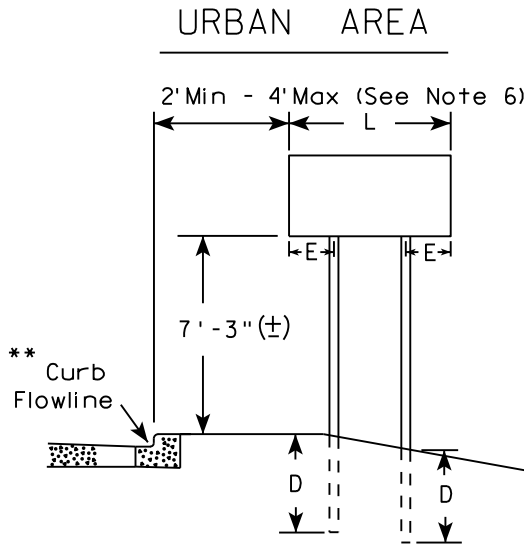
FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1



48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

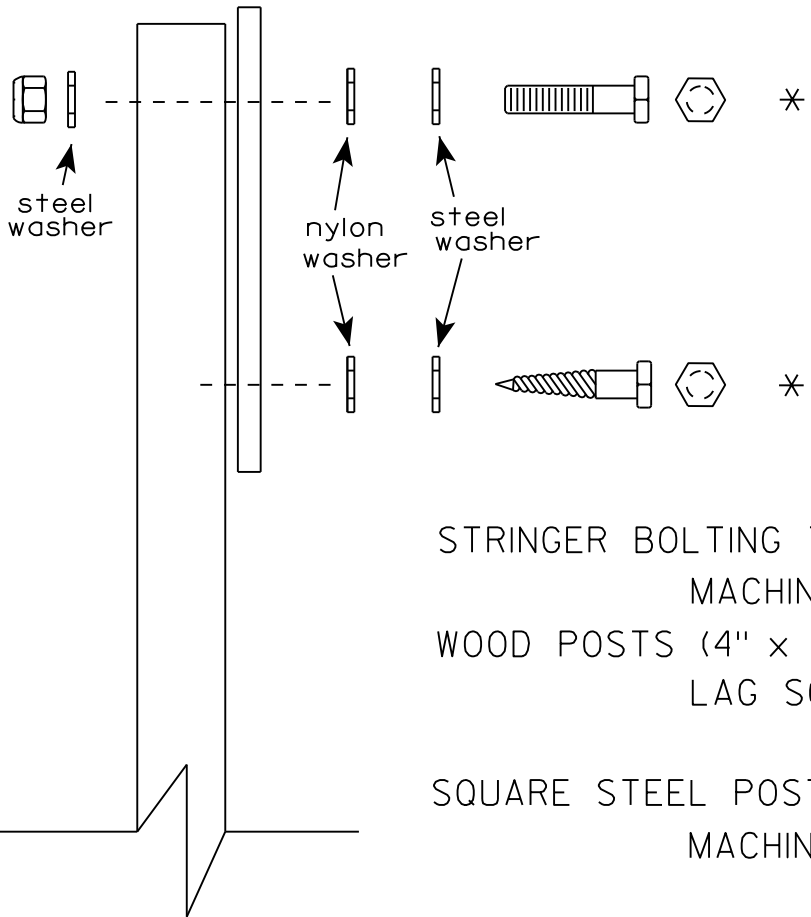
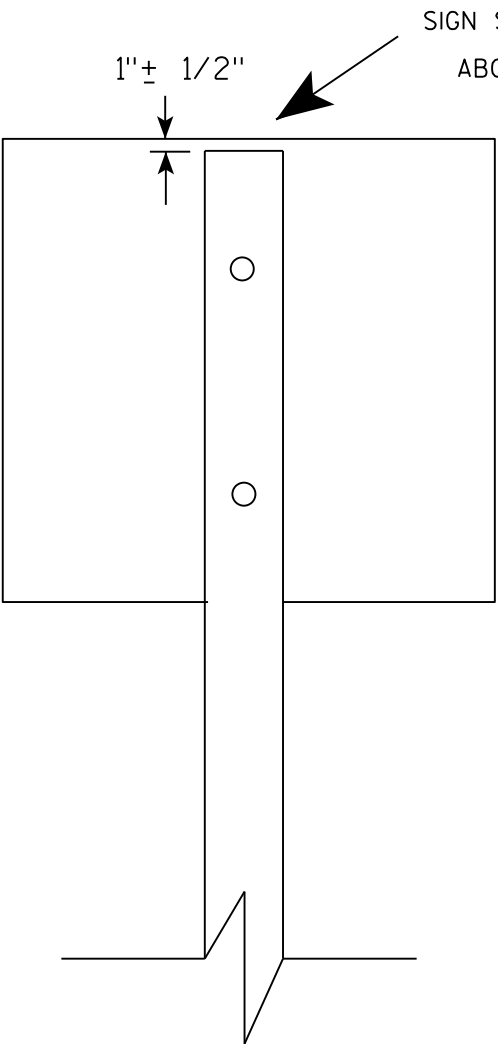
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- ** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- *** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

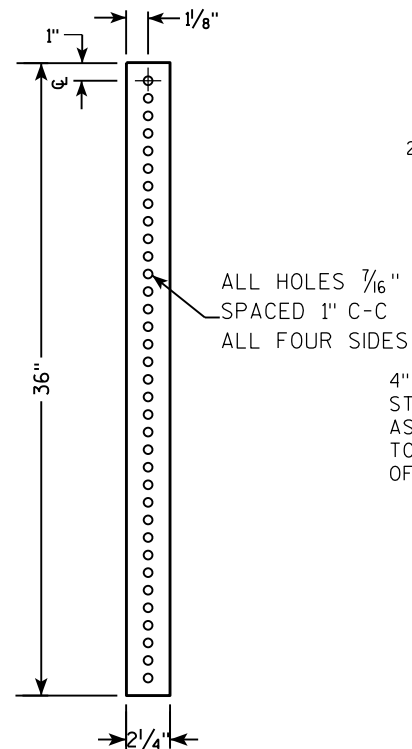
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

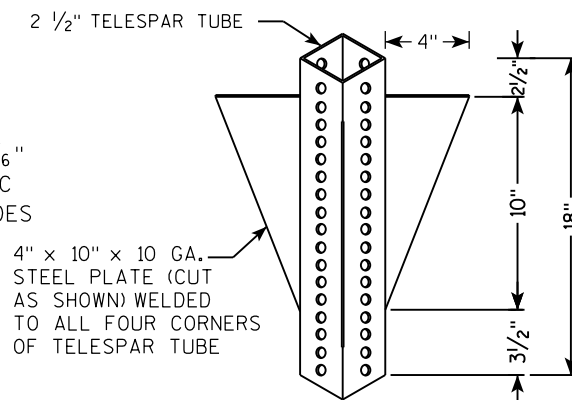
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE <u>8/11/16</u>	PLATE NO. <u>A4-8.8</u>

**2 1/4 " SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH**



**2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH**



LENGTH SHOWN ON MISC. QTY'S
 18" DIA SCHEDULE 40 PVC BOX-OUT
 TELESCOPE PIECES FLUSH AT TOP
 36"
 18"
 13"
 2 1/2"
 2 1/4" SQUARE X 36"
 2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)
 3/8" ZINC PLATED ANCHOR BOLT AND NUT
 3/8" ZINC PLATED CORNER ANCHOR BOLT AND NUT
 ALL HOLES 7/16" SPACED 1" C-C ALL FOUR SIDES
 2" STEEL TUBULAR SQUARE UPPER SECTION
 SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL
 SIGN
 2 1/2" GRAVEL OR DIRT

LENGTH SHOWN ON MISC. QTY'S

SIGN

SEE SIGN PLATE A4-8 FOR BOLT WASHER, & NUT MATERIAL

2" STEEL TUBULAR SQUARE UPPER SECTION

ALL HOLES $\frac{7}{16}$ " SPACED 1" C-C ALL FOUR SIDES

$\frac{3}{8}$ " ZINC PLATED CORNER ANCHOR BOLT AND NUT

TELESCOPE PIECES FLUSH AT TOP

1"

$\frac{3}{8}$ " ZINC PLATED ANCHOR BOLT AND NUT

2 1/2" SQUARE X 18" (SOIL STABILIZING SLEEVE)

2 1/4" SQUARE X 36"

36"

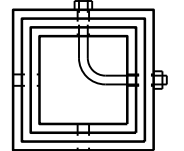
18"

12"

A

A

3/8" ZINC PLATED CORNER
ANCHOR BOLT AND NUT



DIRECTION
OF TRAFFIC

SECTION A-A

Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

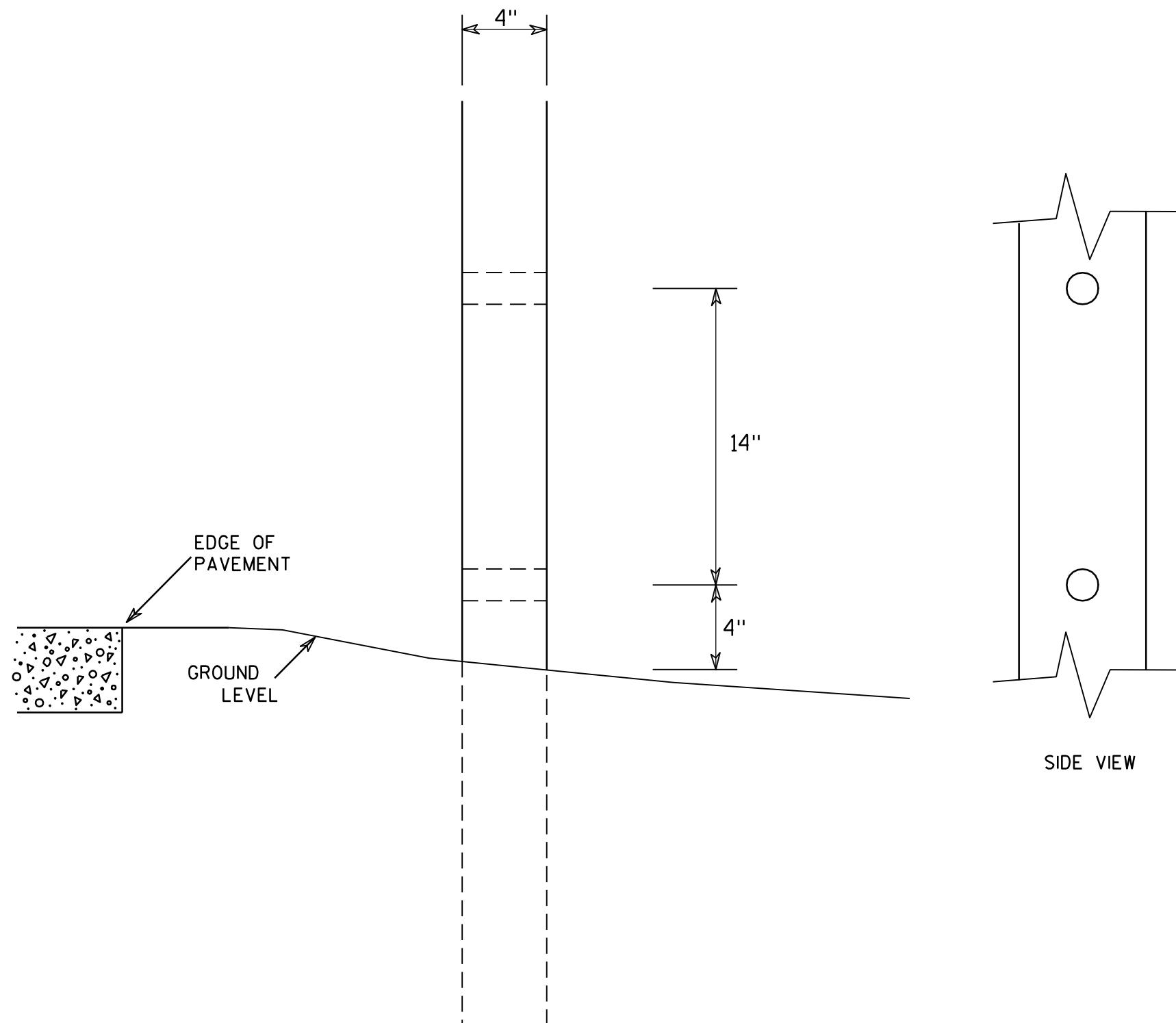
APPROVED Matthew R Rauch

for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

4 X 6 WOOD POST MODIFICATIONS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97

PLATE NO. A4-11.2

PROJECT NO:

HWY:

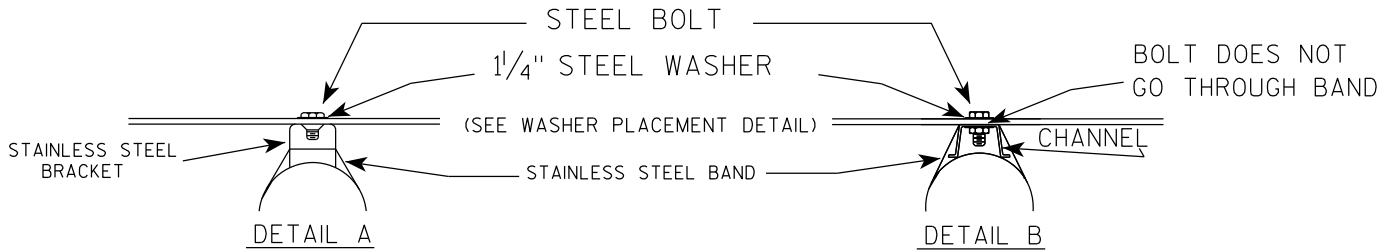
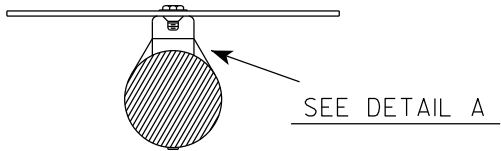
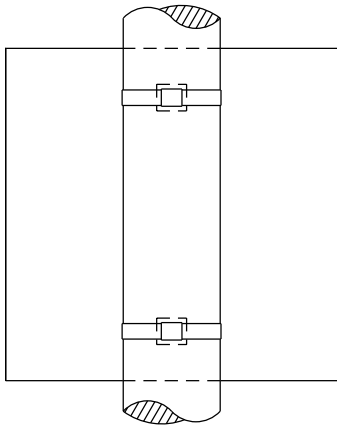
COUNTY:

SHEET NO:

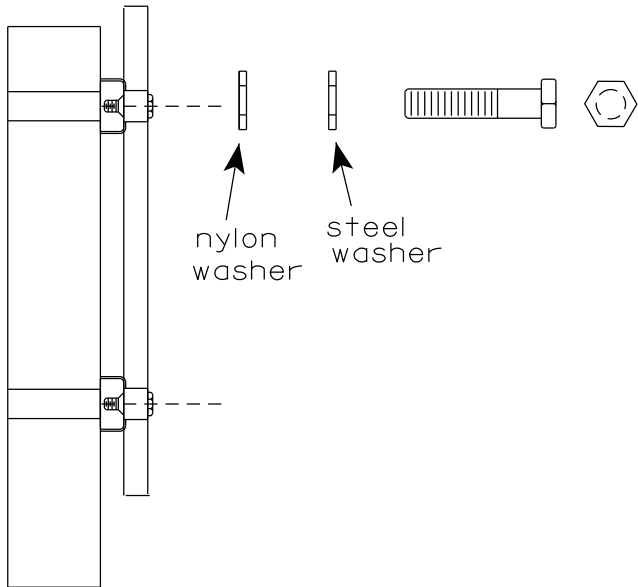
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

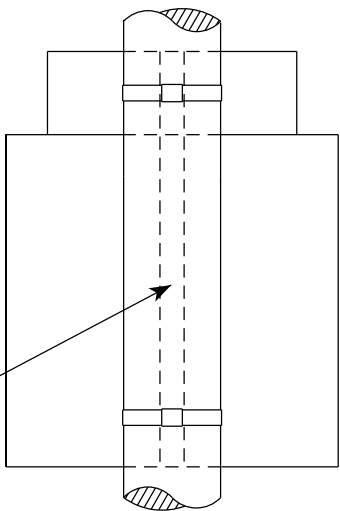


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

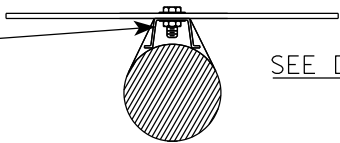
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



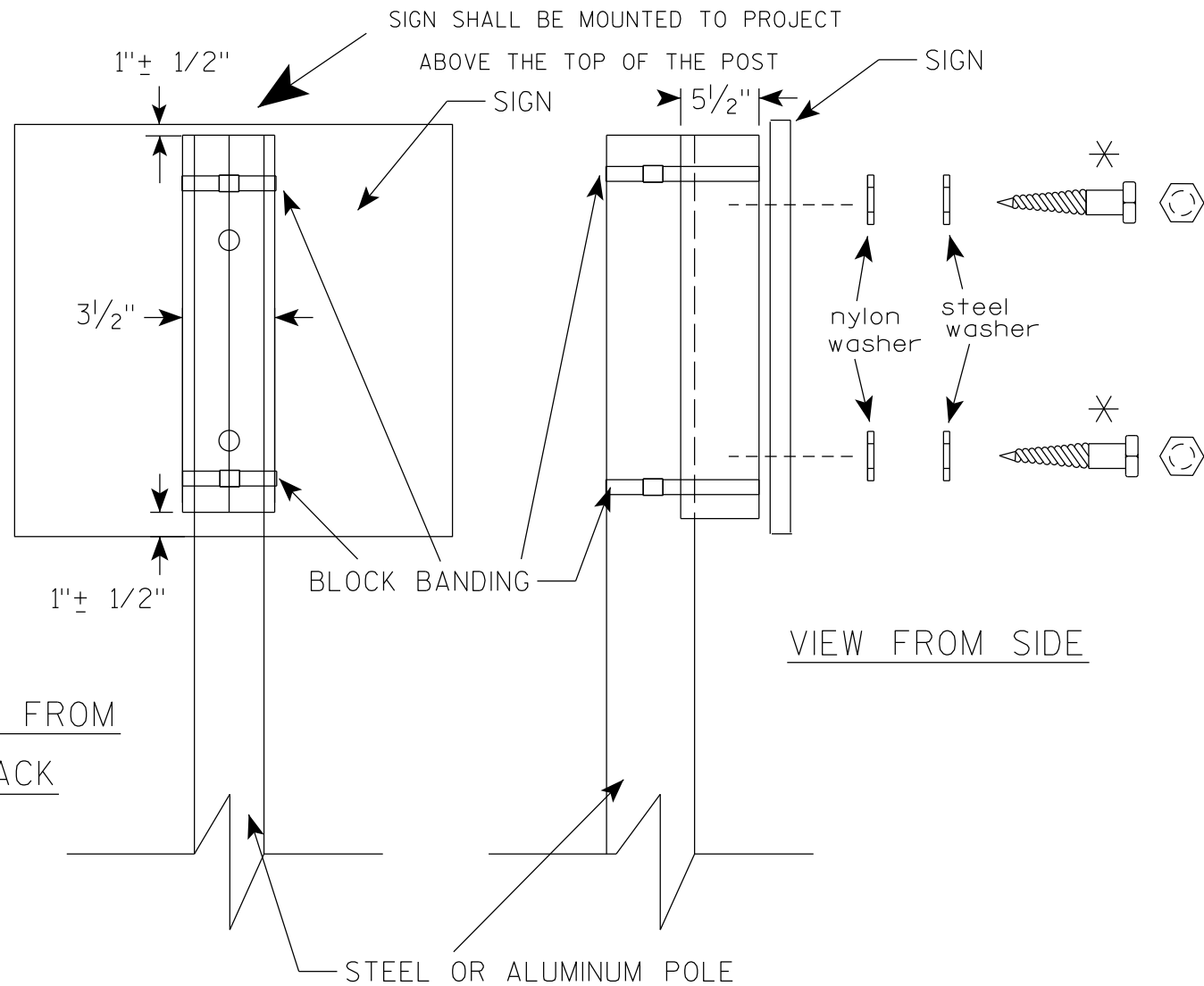
STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

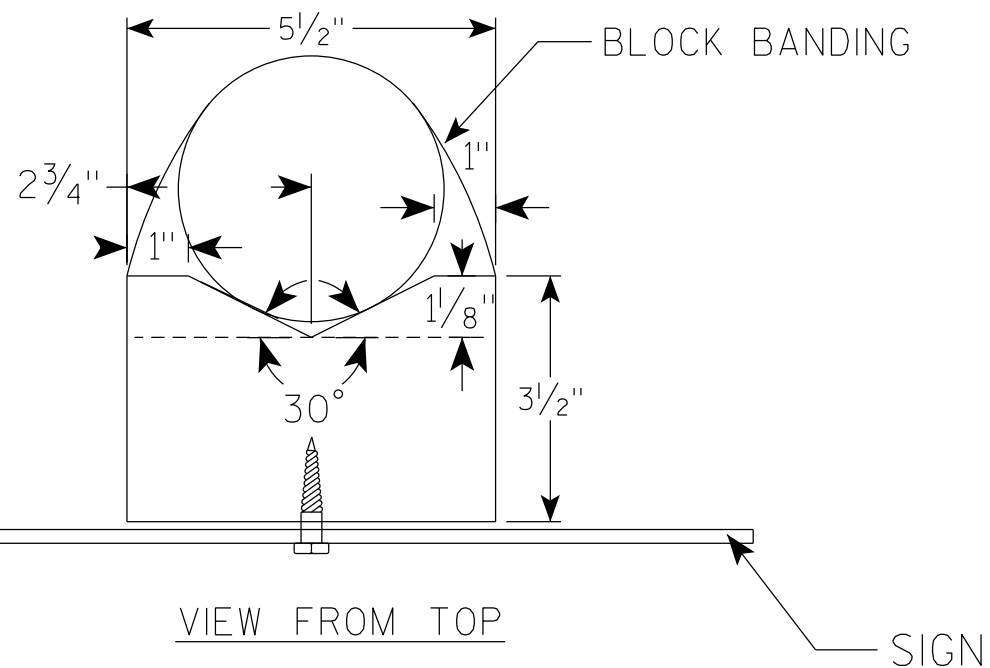
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM
BACK



VIEW FROM SIDE



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-10.2

PROJECT NO:

SHEET NO:

E

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions
through innovation and exceptional service.

<http://www.dot.wisconsin.gov>

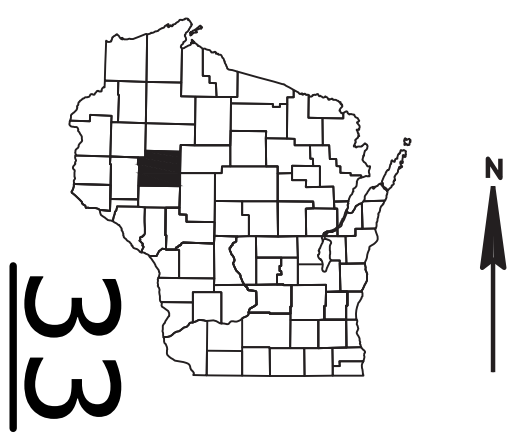
EAU PROJECT ID: 1192-00-73 WITH: 1192-00-72 COUNTY: CHIPPEWA

MAY 2020

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details (Includes Erosion Control)
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plan
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Gross Sections

TOTAL SHEETS = 102



DESIGN DESIGNATION

A.A.D.T.	2020	=	14,070
A.A.D.T.	2040	=	16,740
D.H.V.	2040	=	2,230
D.D.		=	59/41
T.		=	15.9%
DESIGN SPEED		=	70 MPH
ESALS		=	6,200,000

CONVENTIONAL SYMBOLS

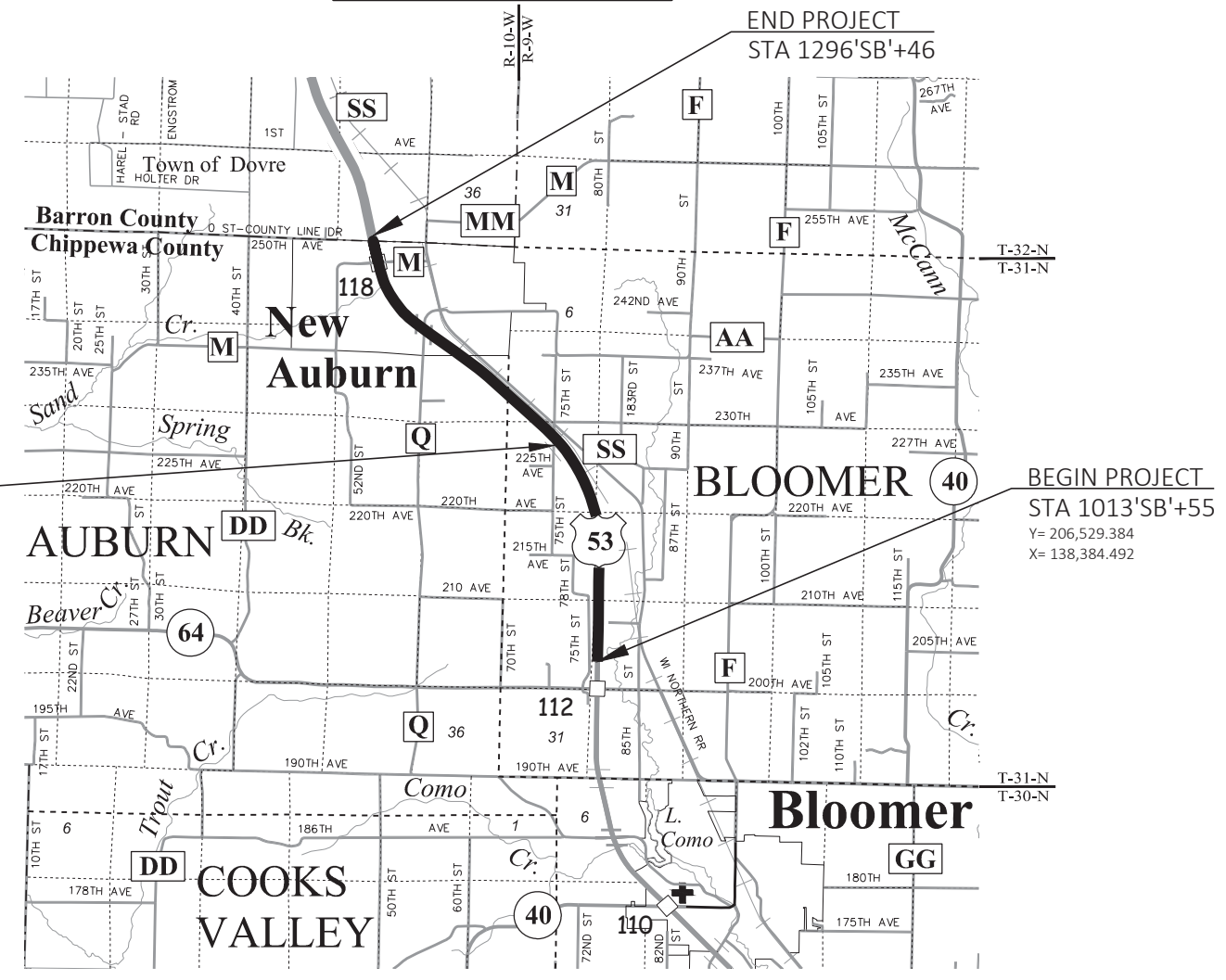
PLAN	
CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE	
GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
PLAN OF PROPOSED IMPROVEMENT

CHIPPEWA FALLS - NEW AUBURN
STH 64 TO NORTH COUNTY LINE (SB)
USH 53
CHIPPEWA

STATE PROJECT NUMBER
1192-00-73



LAYOUT
SCALE 0 2 MI
TOTAL NET LENGTH OF CENTERLINE = 5.325 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), CHIPPEWA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1192-00-73	WISC 2020280	1

emcs, inc.
500 North 17th Avenue
Wausau, WI 54401
715.845.1081 Fax 715.845.1099



1/9/2020 DATE
Stephanie G. Christensen (SIGNATURE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	EMCS, INC.
Designer	EMCS, INC.
Project Manager	TYLER RONGSTAD
Regional Examiner	TOU YANG
Regional Supervisor	JAMES KOENIG

APPROVED FOR THE DEPARTMENT
DATE: 1/9/2020 (Signature)

GENERAL NOTES

THERE ARE UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

AS-BUILTS USED FOR PLAN DEVELOPMENT

PROJECT NO: 1190-00-63, CONSTRUCTION YEAR: 2012
PROJECT NO: 1191-09-74, CONSTRUCTION YEAR: 2008
PROJECT NO: 1191-09-76, CONSTRUCTION YEAR: 2007
PROJECT NO: 1191-09-75, CONSTRUCTION YEAR: 2005
PROJECT NO: 1192-02-73, CONSTRUCTION YEAR: 1996
PROJECT NO: 1192-01-71, CONSTRUCTION YEAR: 1972
PROJECT NO: 1191-01-71, CONSTRUCTION YEAR: 1970

ORDER OF SECTION 2 SHEETS

- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PERMANENT SIGNING
- TRAFFIC CONTROL

ALIGNMENT DESIGNATORS

- 'SB' - USH 53 SOUTHBOUND
- 'M' - CTH M
- 'A' - CTH M / USH 53 NORTHBOUND EXIT RAMP *
- 'B' - CTH M / USH 53 NORTHBOUND ENTRANCE RAMP *
- 'C' - CTH M / USH 53 SOUTHBOUND EXIT RAMP
- 'D' - CTH M / USH 53 SOUTHBOUND ENTRANCE RAMP
- 'NB' - USH 53 NORTHBOUND *

* CTH M / USH 53 NORTHBOUND EXIT RAMP, CTH M / USH 53 NORTHBOUND ENTRANCE RAMP, AND USH 53 NORTHBOUND ALIGNMENT SHOWN ON TYPICAL SECTIONS AND SECTION 5 PLAN SHEETS FOR GRAPHICAL REFERENCE ONLY. SEE PROJECT ID 1192-00-72 PLANS.

COMMUNICATIONS

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(F/K/A PACKERLAND BROADBAND)
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ANDY.HEIGL@ASTREACONNECT.COM

BLOOMER TELEPHONE COMPANY
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JOSH.LIEN@BLOOMER.NET

CINC
DAREN BAUER
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CHIPPEWA FALLS, WI 54729
PHONE: (715) 836-5286
BAUERDP@UWEC.EDU

CITIZENS CONNECTED
DARRELL DOUGHTY
328 WEST MAIN STREET
P.O. BOX 127
NEW AUBURN, WI 54757
PHONE: (715) 237-2605
DDOUGHTY@CITIZENS-CONNECTED.COM

UTILITIES

ELECTRIC

CHIPPEWA VALLEY ELECTRIC COOPERATIVE
BOB WRUCK
317 SOUTH 8TH ST
P.O. BOX 575
CORNELL, WI 54732
PHONE: (715) 239-6800
RWRUCK@CVE.COOP

XCEL ENERGY
STACEY HAUGEN
2911 SOUTH PIONEER AVE
RICE LAKE, WI 54868
PHONE: (715) 236-5721
STACEY.RAETHER@XCELENERGY.COM

GAS

WE ENERGIES
STEVEN CHAVERS
104 WEST SOUTH ST
RICE LAKE, WI 54868
PHONE: (715) 234-9605
STEVEN.CHAVERS@WE-ENERGIES.COM



Dial 811 or (800)242-8511
www.DiggersHotline.com

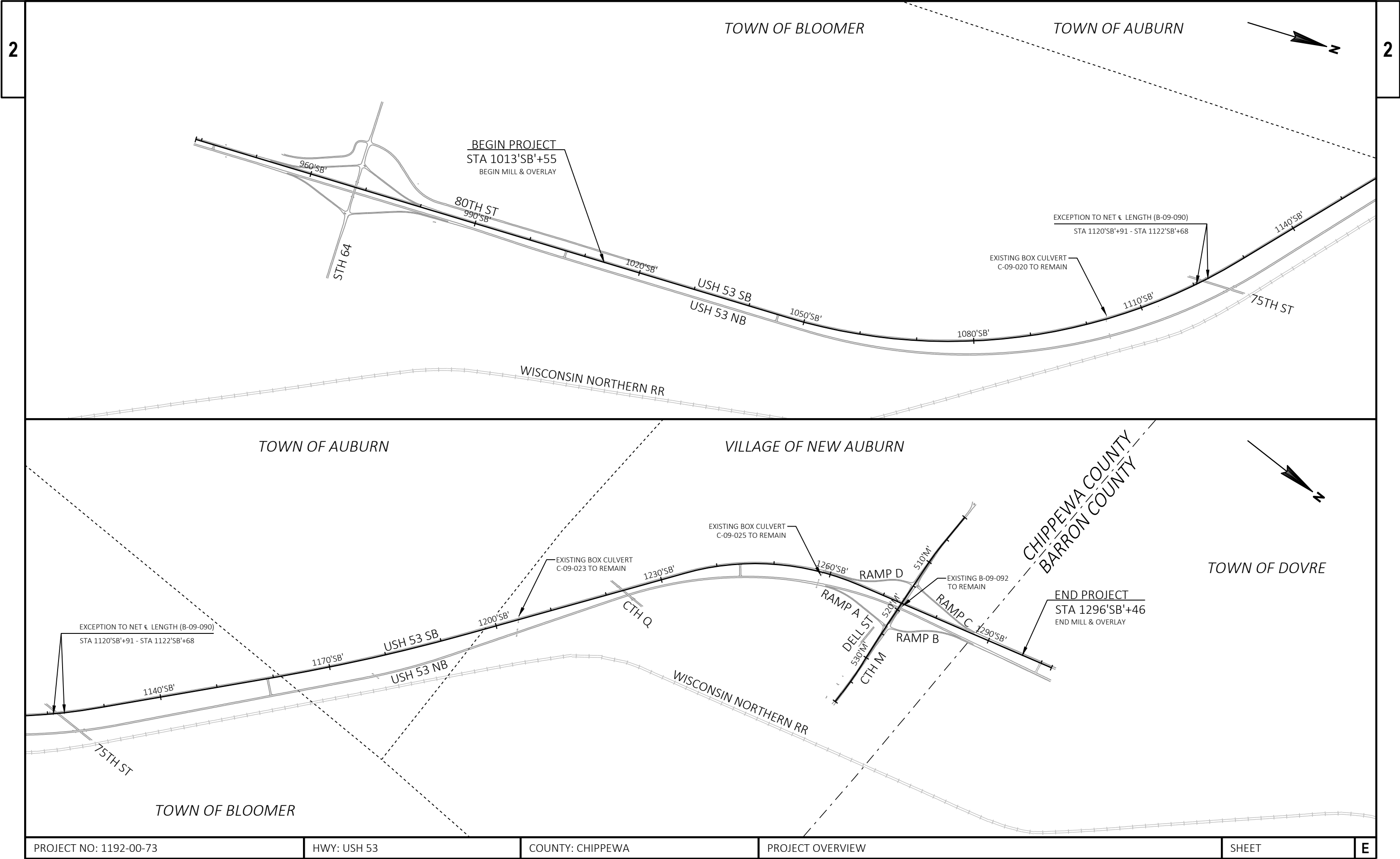
OTHER CONTACTS

US ARMY CORPS OF ENGINEERS

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180 5TH ST. EAST, SUITE 700
ST. PAUL , MN 55101
(651) 290-5191
DANIEL.J.MUNSON@USACE.ARMY.MIL

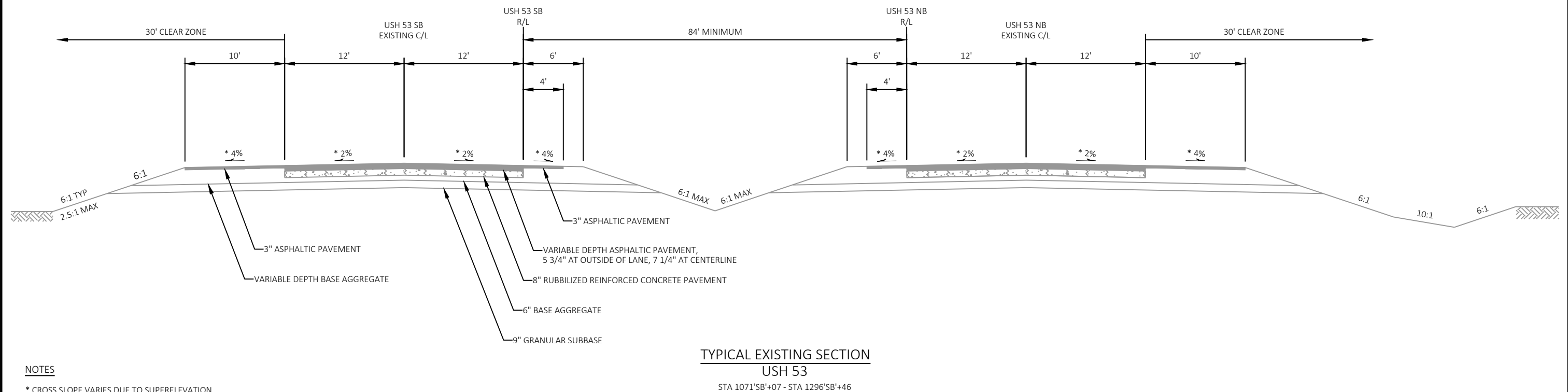
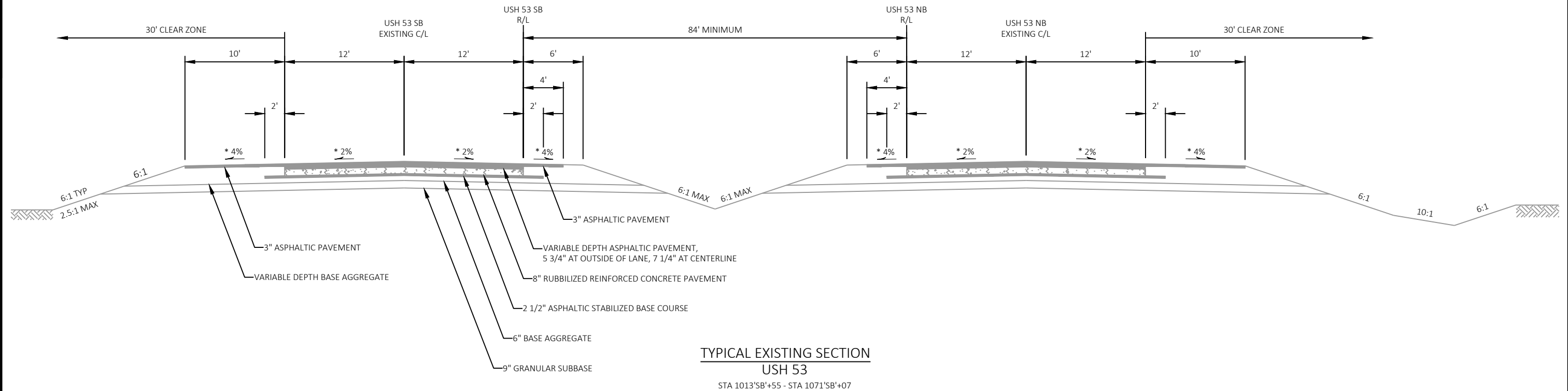
DNR LIAISON

LEAH NICOL
1300 WEST CLAIREMONT AVE
EAU CLAIRE, WI 54701
(715) 934-9014
LEAH.NICOL@WISCONSIN.GOV



PROJECT NO: 1192-00-73	HWY: USH 53	COUNTY: CHIPPEWA	PROJECT OVERVIEW	SHEET	E
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2

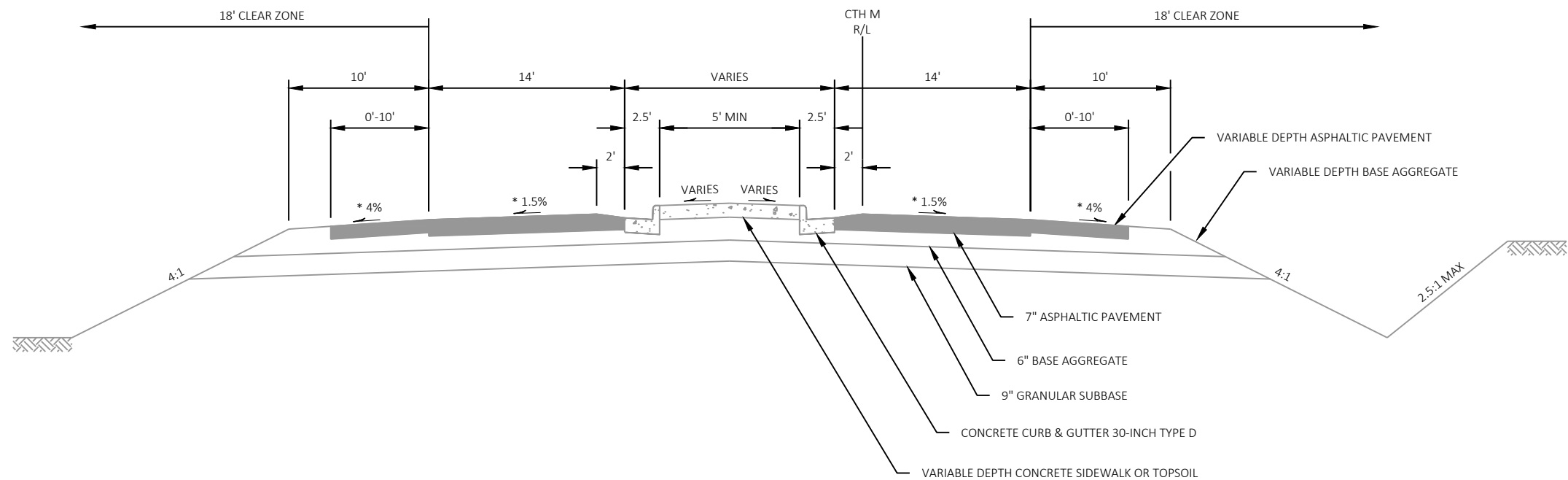
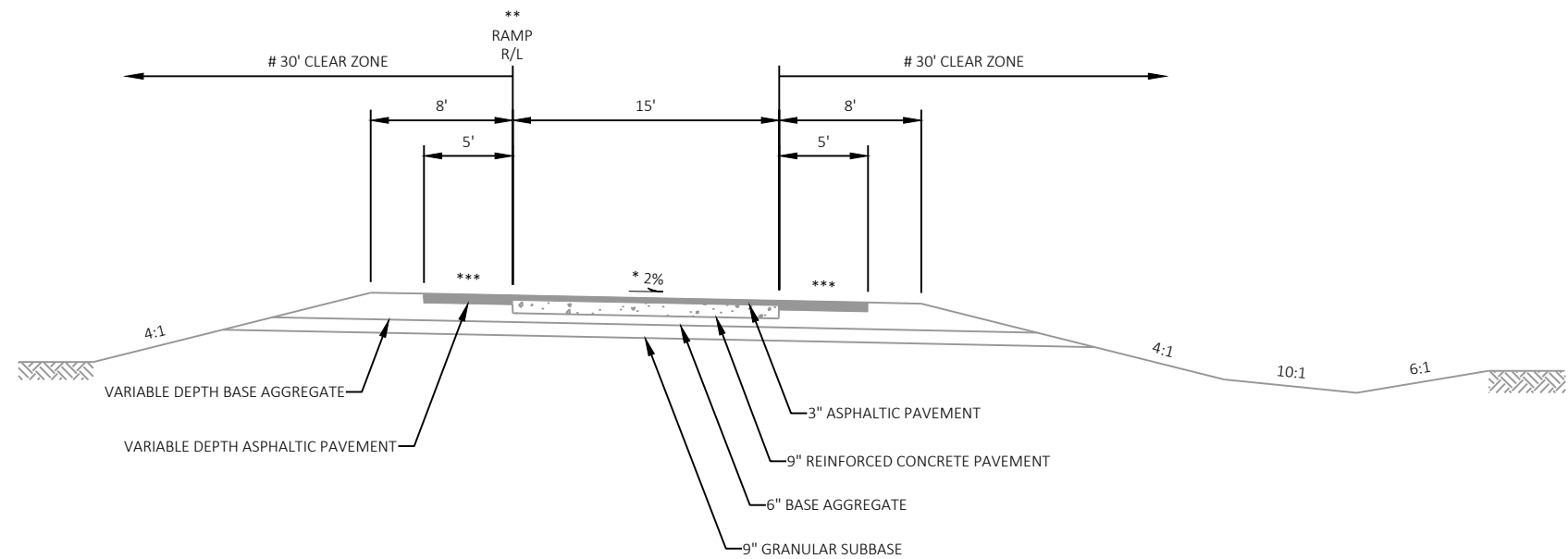


NOTES

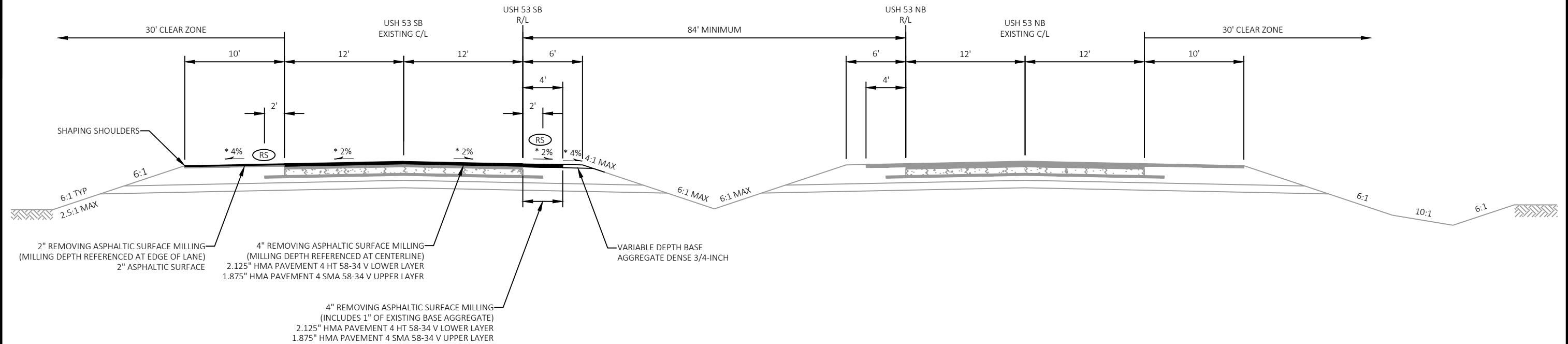
* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

** EXISTING CROSS SLOPE OF CONCRETE PAVEMENT AND BELOW WAS CONSTRUCTED AT 1.0%.

SEE SECTION 5 PLAN SHEETS FOR EXISTING GUARDRAIL LOCATIONS.

**NOTES**

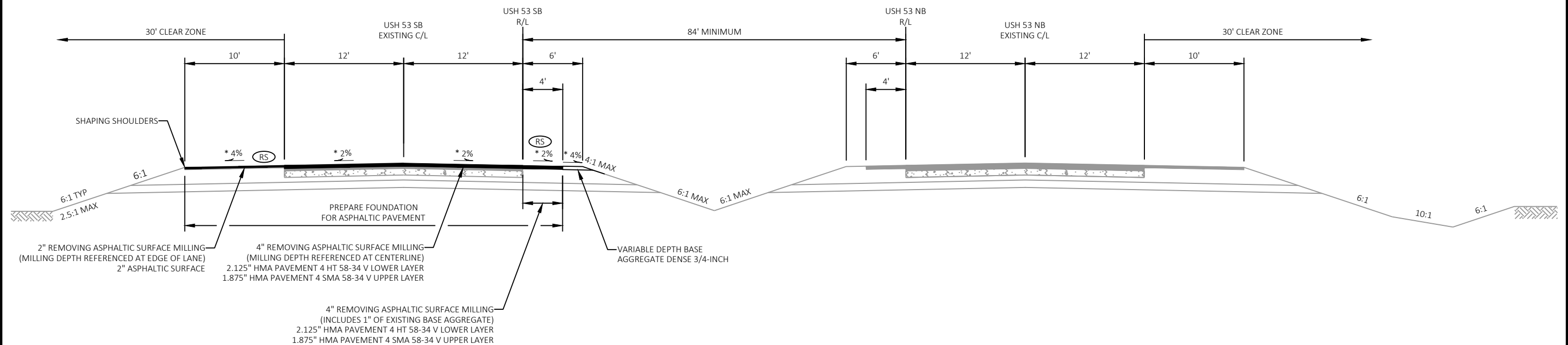
- * CROSS SLOPE VARIES DUE TO SUPERELEVATION.
- ** REFERENCE LINE LOCATION SHOWN IN RELATION TO DIRECTION OF TRAVEL.
- *** SHOULDER CROSS SLOPES TYPICALLY MATCH TRAVEL LANE CROSS SLOPES.
- # ASSUMED CLEAR ZONE.
- SEE SECTION 5 PLAN SHEET FOR TURN LANE LOCATIONS.



TYPICAL FINISHED SECTION

USH 53

STA 1013'SB'+55 - STA 1071'SB'+07



TYPICAL FINISHED SECTION

USH 53

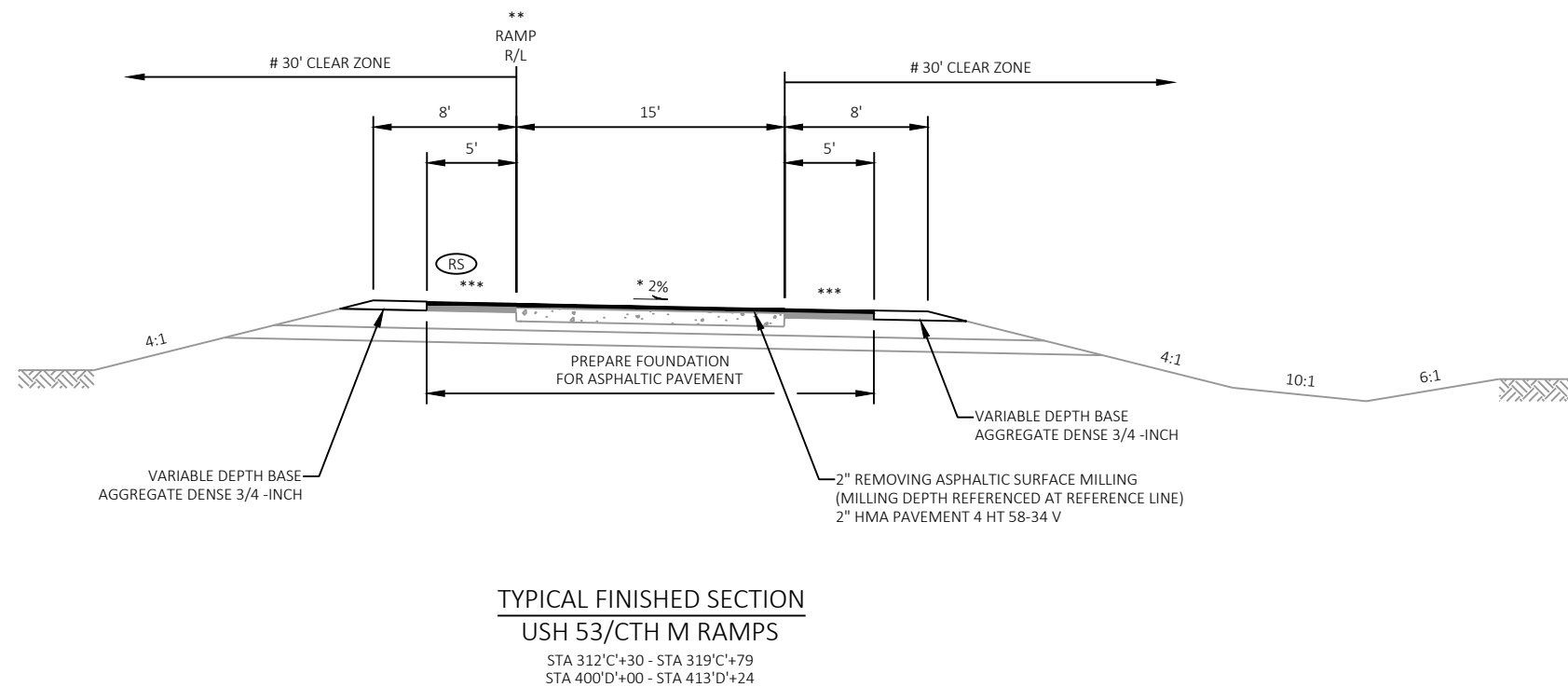
STA 1071'SB'+07 - STA 1296'SB'+46

NOTES

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

REMOVAL OF ALL PAVEMENT MARKERS PRIOR TO MILLING IS INCIDENTAL TO REMOVING ASPHALTIC SURFACE MILLING.

RS ASPHALTIC SHOULDER RUMBLE STRIP. SEE SDD "SHOULDER RUMBLE STRIP, MILLING" FOR ADDITIONAL INFORMATION.

**NOTES**

* CROSS SLOPE VARIES DUE TO SUPERELEVATION.

** REFERENCE LINE LOCATION SHOWN IN RELATION TO DIRECTION OF TRAVEL.

*** SHOULDER CROSS SLOPES TYPICALLY MATCH TRAVEL LANE CROSS SLOPES.

ASSUMED CLEAR ZONE.

RS

ASPHALTIC SHOULDER RUMBLE STRIP. SEE SDD "SHOULDER RUMBLE STRIP, MILLING" FOR ADDITIONAL INFORMATION.

PROJECT NO: 1192-00-73

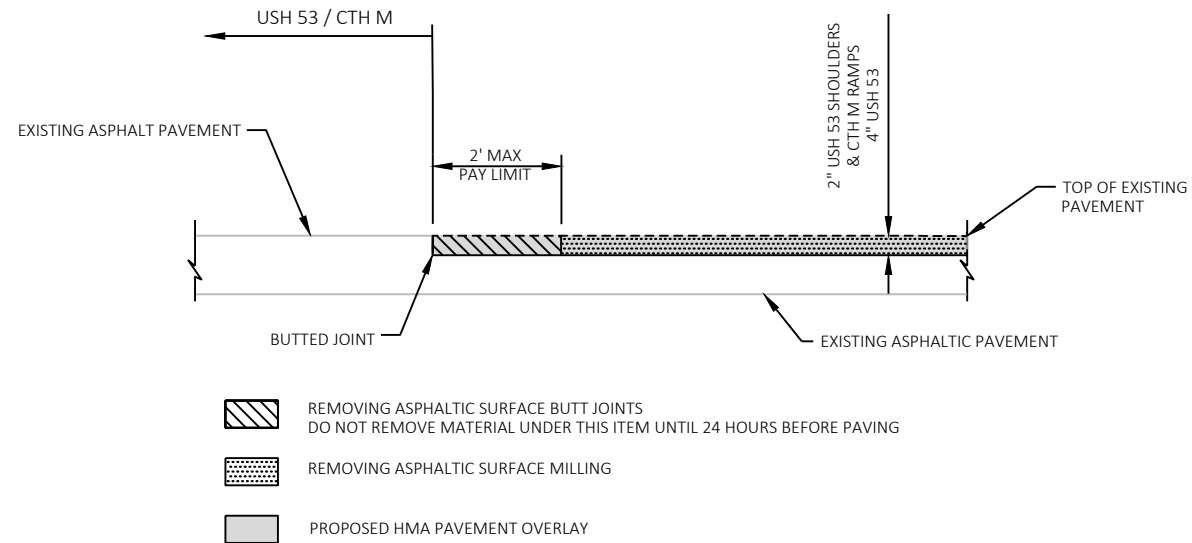
HWY: USH 53

COUNTY: CHIPPEWA

TYPICAL SECTIONS

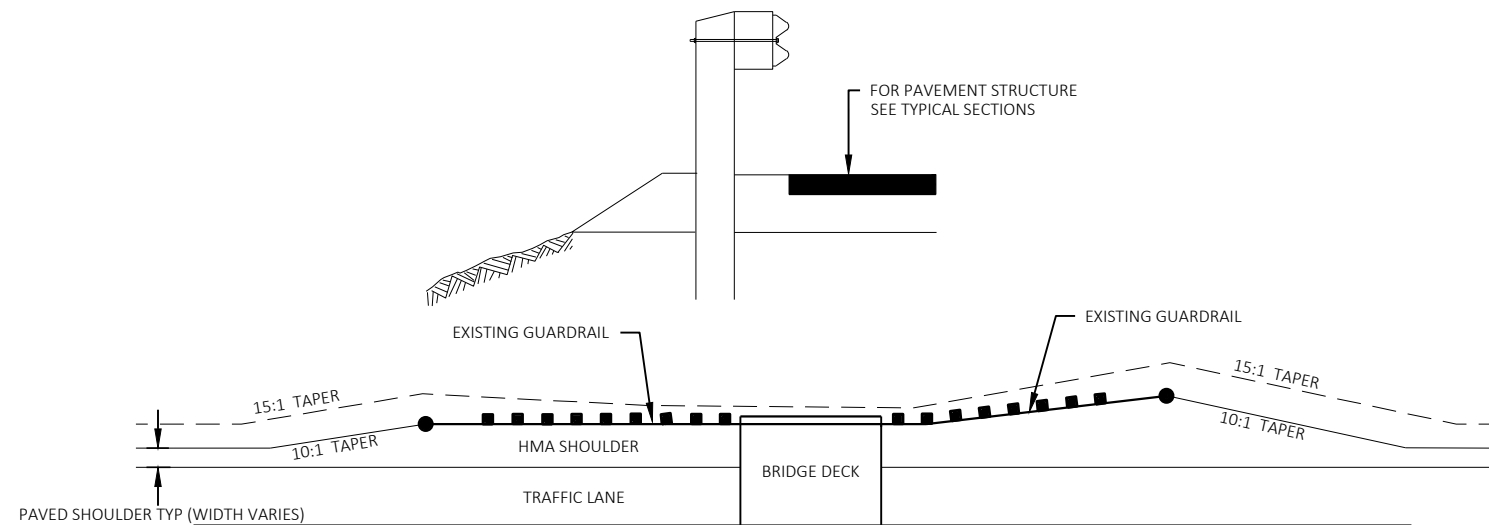
SHEET

E



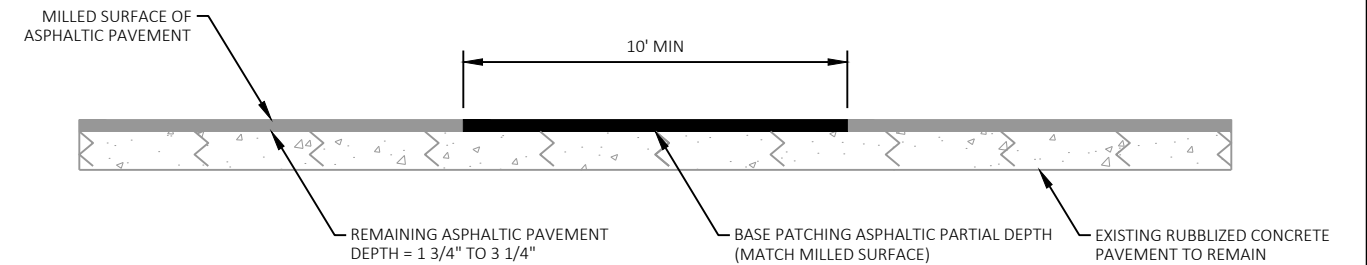
BUTT JOINT DETAIL

STA 1013'SB'+55
STA 1120'SB'+91 (B-09-090)
STA 1122'SB'+68 (B-09-090)
STA 1296'SB'+46
STA 312'C'+30
STA 413'D'+24



HMA SHOULDER AT GUARDRAIL DETAIL

SEE SECTION 5 PLAN SHEETS FOR EXISTING GUARDRAIL LOCATIONS

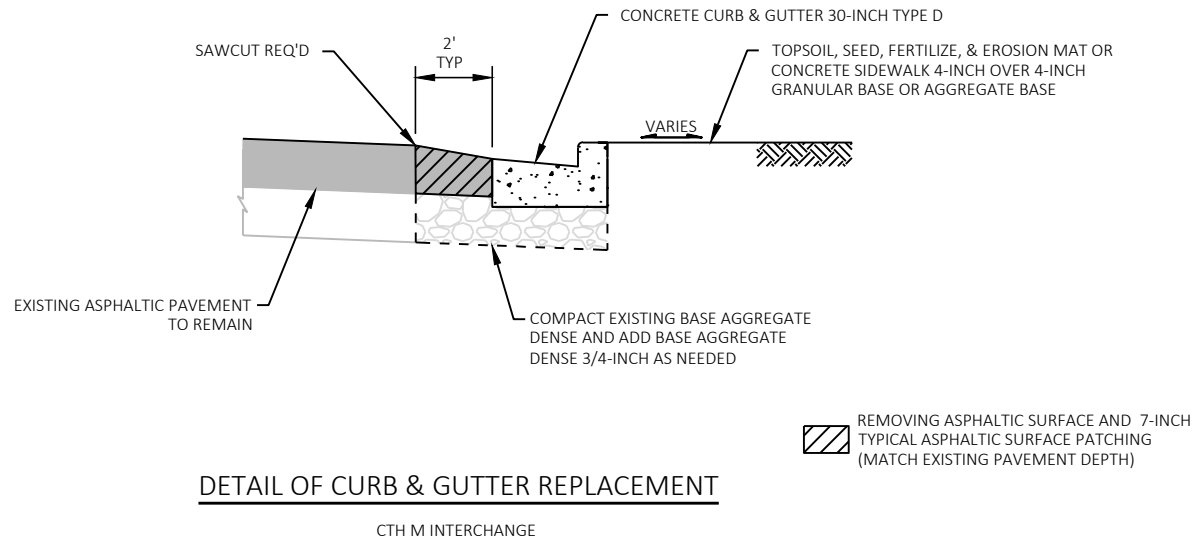


LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER

THE BASE PATCHING ASPHALTIC PARTIAL DEPTH PAVEMENT SHALL BE PLACED AT A MAXIMUM THICKNESS OF 4-INCHES PER LAYER.



PLACE LONGITUDINAL SAWCUT IN A LOCATION TO MAINTAIN 16'
CLEAR WIDTH FOR TRAFFIC AS REQUIRED IN THE SPECIAL PROVISIONS.



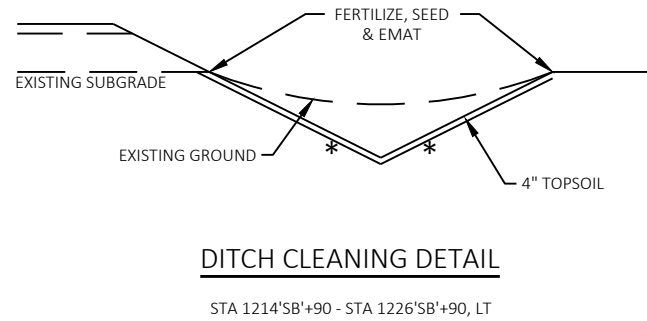
NOTES

REPLACE EXISTING EDGELINE MARKING ADJACENT TO CURB REPLACEMENTS.

INSTALL CURB MARKING AND ISLAND NOSE MARKING PER SDD "PAVEMENT MARKING (ISLANDS)".

FOR DETAILS NOT SHOWN, SEE SDD "CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES".

SEE SECTION 5 PLAN SHEETS FOR ADDITIONAL INFORMATION.



NOTE

* SLOPES VARY, 4:1 MAX

RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08	.16	.22	.12	.20	.27	.15	.24	.33	.19	.28	.38
	.22	.30	.38	.26	.34	.44	.30	.37	.50	.34	.41	.56
MEDIAN STRIP-TURF	.19	.20	.24	.19	.22	.26	.20	.23	.30	.20	.25	.30
	.24	.26	.30	.25	.28	.33	.26	.30	.37	.27	.32	.40
SIDE SLOPE-TURF			.25			.27			.28			.30
			.32			.34			.36			.38
PAVEMENT:												
ASPHALT						.70 - .95						
CONCRETE						.80 - .95						
BRICK						.70 - .80						
DRIVES, WALKS						.75 - .85						
ROOFS						.75 - .95						
GRAVEL ROADS, SHOULDERS						.40 - .60						

TOTAL PROJECT AREA = 150 ACRES

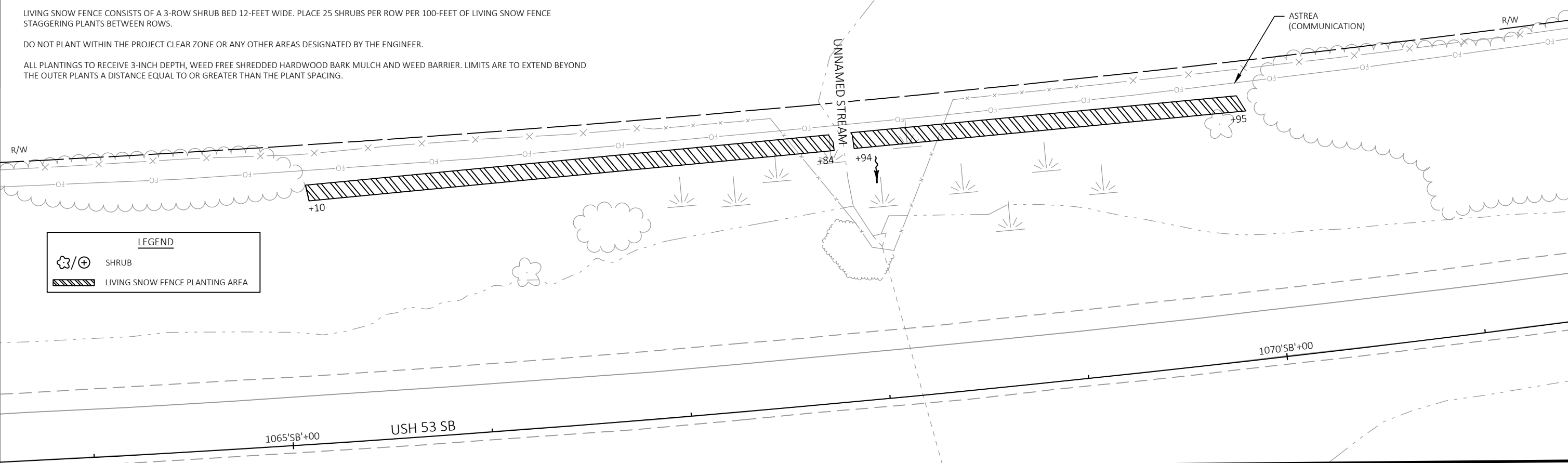
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.3 ACRE

NOTES

LIVING SNOW FENCE CONSISTS OF A 3-ROW SHRUB BED 12-FEET WIDE. PLACE 25 SHRUBS PER ROW PER 100-FEET OF LIVING SNOW FENCE STAGGERING PLANTS BETWEEN ROWS.

DO NOT PLANT WITHIN THE PROJECT CLEAR ZONE OR ANY OTHER AREAS DESIGNATED BY THE ENGINEER.

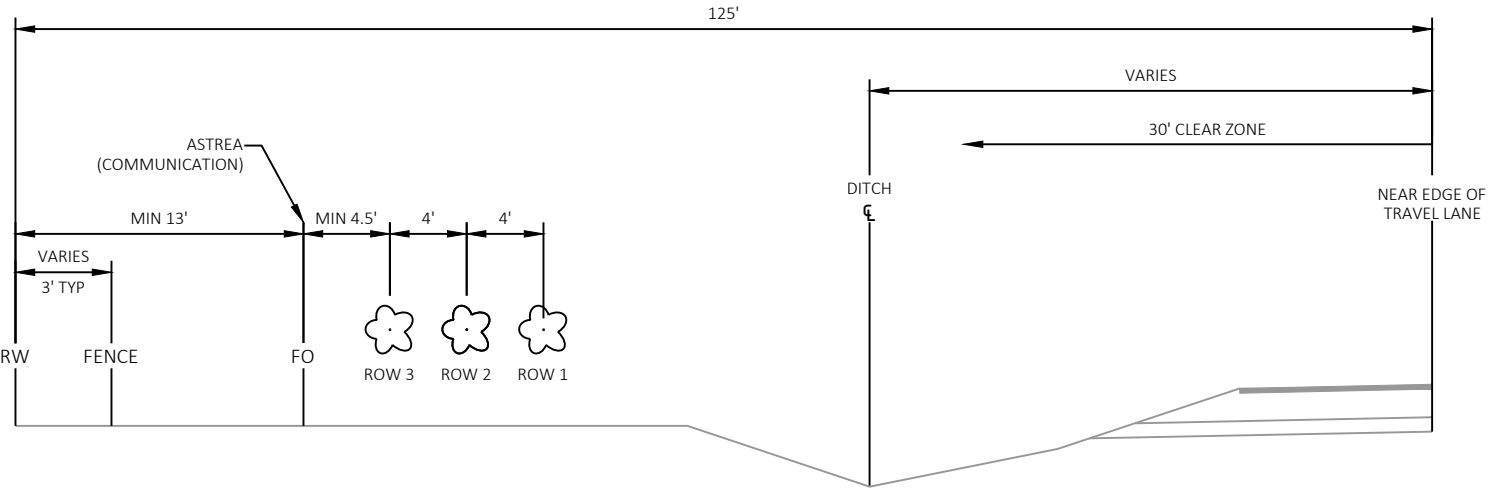
ALL PLANTINGS TO RECEIVE 3-INCH DEPTH, WEED FREE SHREDDED HARDWOOD BARK MULCH AND WEED BARRIER. LIMITS ARE TO EXTEND BEYOND THE OUTER PLANTS A DISTANCE EQUAL TO OR GREATER THAN THE PLANT SPACING.



LEGEND

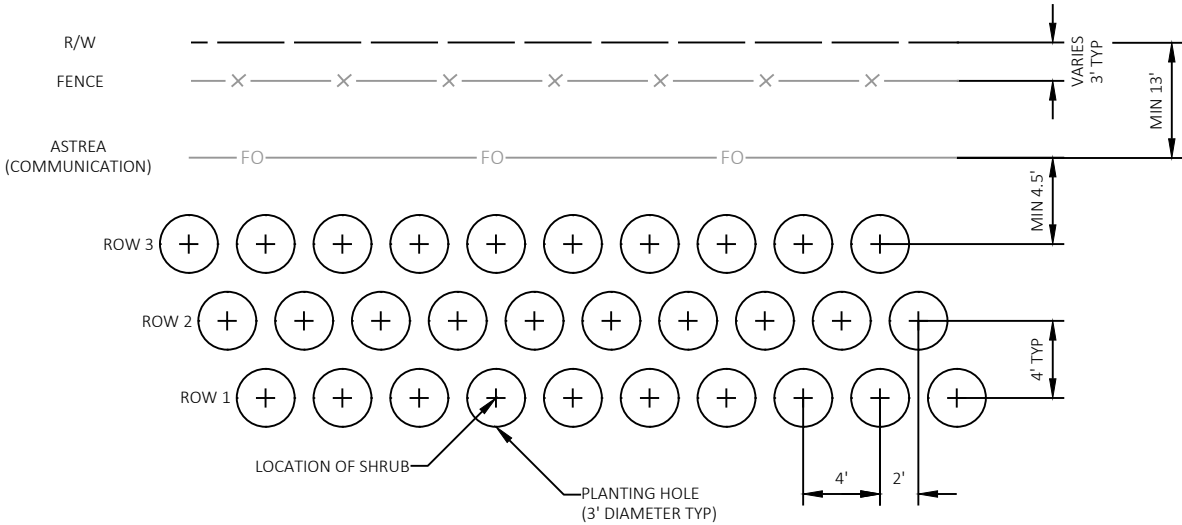
SHRUB

LIVING SNOW FENCE PLANTING AREA



SNOWDRIFT CONTROL SECTION, TYPICAL

STA 1065'SB'+10 - STA 1069'SB'+95





SNOWDRIFT CONTROL PLANTING DETAIL, PLAN


STA 1065'SB'+10 - STA 1069'SB'+95

ROW NO.	COMMON NAME	SCIENTIFIC NAME	TYPE	AVERAGE MATURE HEIGHT	SIZE WHEN PLANTED		ROOT ZONE MODE	MINIMUM BALL/POT SIZE		ROOT SPREAD	MINIMUM PLANT HOLE		BRACE OR GUY	FERTILIZER UNITS REQUIRED	RODENT PROTECTION	MULCH RING DIAMETER	PLANT BED DETAIL
					HEIGHT	SPREAD		DIAMETER	DEPTH		DIAMETER	DEPTH					
1	DOGWOOD, REDOSIER	CORNUS SERICEA	2S	8'	2'	N/A	CG	11"	8"	11"	36"	8"	NO	2	NO	48"	YES
2	FILBERT, AMERICAN	CORYLUS AMERICANA	3S	8'	2'	N/A	CG	11"	8"	11"	36"	8"	NO	2	NO	48"	YES
3	NINEBARK, COMMON	PHYSOCARPUS OPULIFOLIUS	3S	10'	2'	N/A	CG	11"	8"	11"	36"	8"	NO	2	NO	48"	YES

LEGEND

 EXISTING SIGN MOUNTED ON SINGLE POST

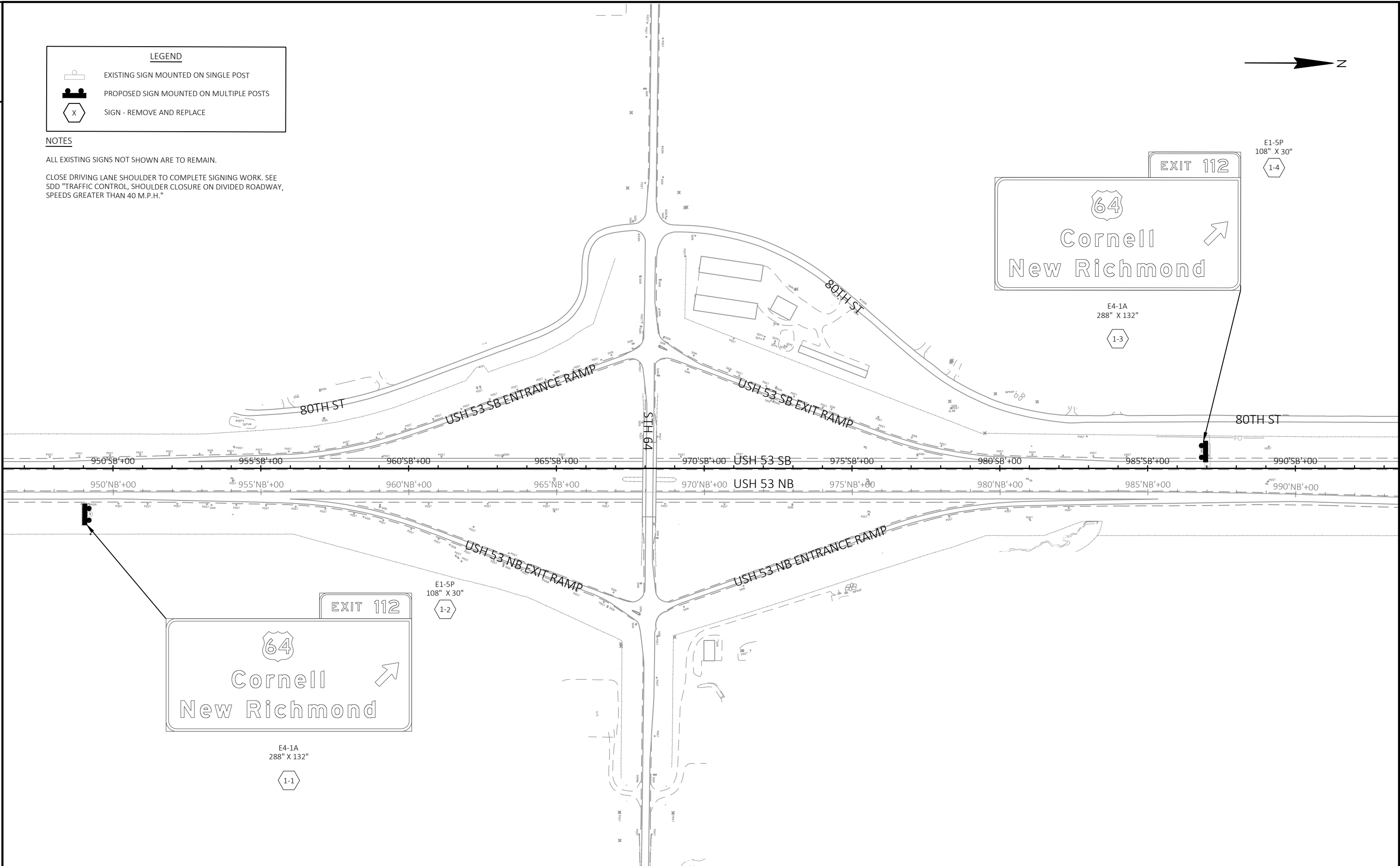
 PROPOSED SIGN MOUNTED ON MULTIPLE POSTS

 SIGN - REMOVE AND REPLACE

NOTES

ALL EXISTING SIGNS NOT SHOWN ARE TO REMAIN.

CLOSE DRIVING LANE SHOULDER TO COMPLETE SIGNING WORK. SEE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H."



PROJECT NO: 1192-00-73	HWY: USH 53	COUNTY: CHIPPEWA	PERMANENT SIGNING	SHEET	E
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TRAFFIC CONTROL GENERAL NOTES

1. ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.
3. ALL TYPE III BARRICADES SHALL BE EQUIPPED WITH TYPE "A" (LOW INTENSITY FLASHING) LIGHTS PER SDDS.
4. FOR USH 53 LANE CLOSURES SEE SDD " TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION".
5. FOR USH 53 NEAR EXIT AND ENTRANCE RAMPs SEE SDD "TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE", SDD "TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE", AND SDD "TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE".
6. FOR USH 53 SHOULDER CLOSURES SEE SDD "TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 M.P.H..".
7. FOR CTH M ADVANCED WARNING SEE SDD "TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO WAY UNDIVIDED OPEN TO TRAFFIC".
8. FOR CTH M MOVING LANE CLOSURES AND FLAGGING SEE SDD " TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION".
9. TRAFFIC CONTROL PLANS FOR USH 53 PROVIDED SUGGESTED STAGING WITH TRAFFIC CONTROL DEVICE LOCATIONS. STAGING MAY BE ALTERED WITH APPROVAL OF THE ENGINEER BASED ON OPERATIONS PROPOSED BY THE CONTRACTOR.

ADVANCED WARNING FOR LANE WIDTH RESTRICTIONS

IN ADDITION TO THE PCMS MESSAGES FOR WIDTH RESTRICTIONS FOR CTH M RAMP WORK, PLACE THE FOLLOWING ADVANCED WARNING SIGNS DURING STAGES M1 AND M2. SEE TRAFFIC CONTROL TYPICAL SECTIONS SHEET FOR ADDITIONAL INFORMATION.

* PLACE THE 36"X36" M1-5A AND 18"X36" FMS ON ALL ASSEMBLIES INSTALLED ON USH 53 AND PLACE 24"X24" M1-5A AND 12"X24" FMS ON ASSEMBLIES ON ALL OTHER ROADWAYS.

** INCLUDE THE WO57-52 SIGN AT LOCATIONS NOT DIRECTLY ADJACENT TO THE WIDTH RESTRICTION AREA.



- W-1 USH 53 NB - 5 1/2 MILES
- W-2 USH 53 NB - 5 MILES
- W-7 USH 53 NB - 1/4 MILE
- W-11 USH 53 SB - 1/4 MILE
- W-12 USH 53 SB - 9 MILES
- W-13 USH 53 SB - 9 1/2 MILES



- W-5 CTH M EB - 2 1/4 MILES
- W-6 CTH M EB - 1/4 MILE
- W-8 CTH SS NB - 1/2 MILE
- W-9 CTH M/CTH SS SB - 1 MILE
- W-10 CTH M WB - 1/4 MILE

NOTES

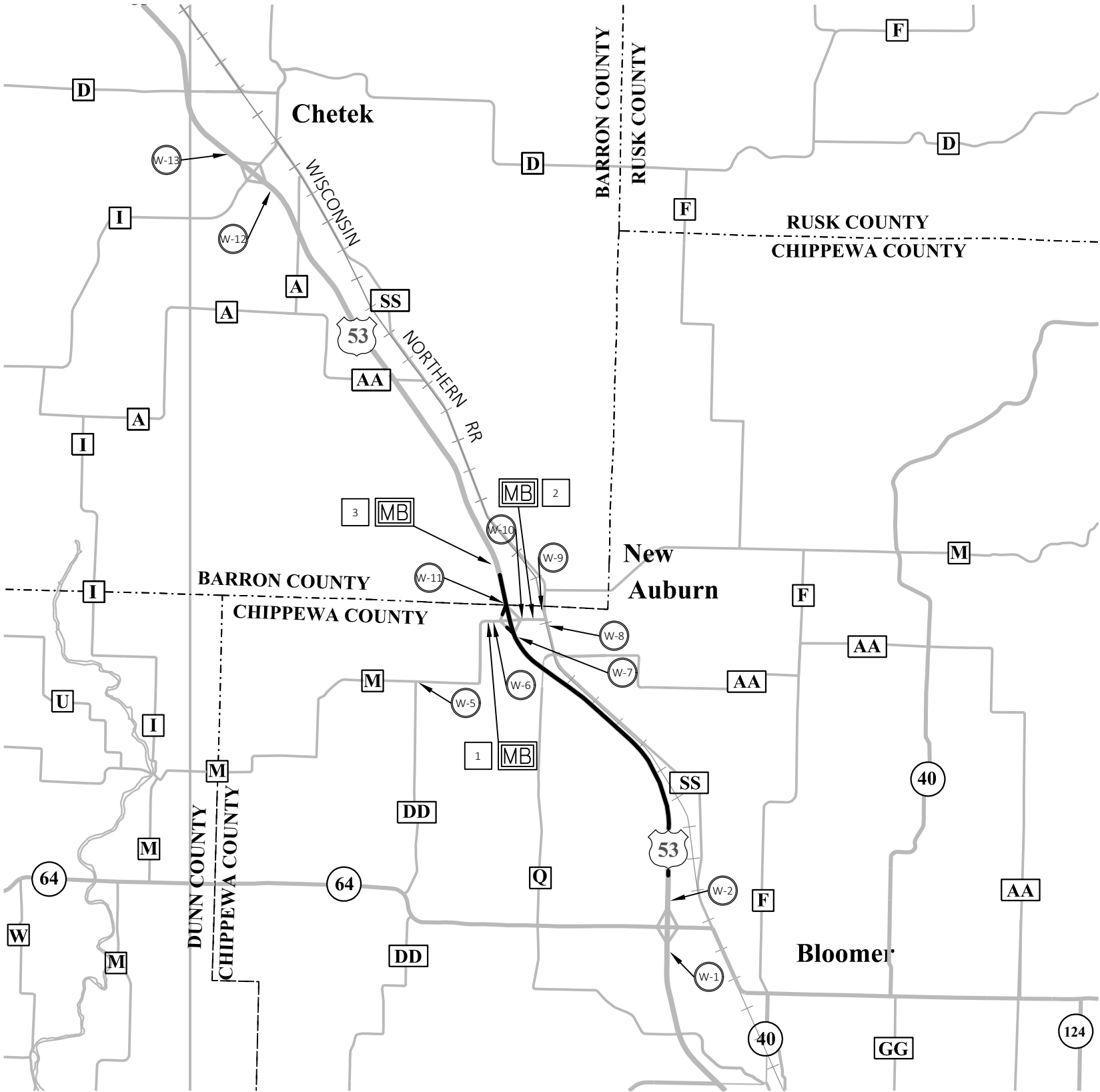
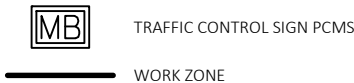
- COMPLETE USH 53 SB WORK ONE LANE AT A TIME. SEE TRAFFIC CONTROL TYPICAL SECTIONS.
- COMPLETE CTH M RAMP WORK HALF AT A TIME. SEE TRAFFIC CONTROL TYPICAL SECTIONS.
- COMPLETE WORK ON CTH M UNDER SINGLE LANE TRAFFIC PER SDD "TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION".
- COORDINATE WITH WORK SHOWN IN PROJECT ID 1192-00-72. WIDTH RESTRICTION SIGNING FOR WORK ON USH 53 NB RAMPs TO CTH M IS INCLUDED IN THIS PLAN.

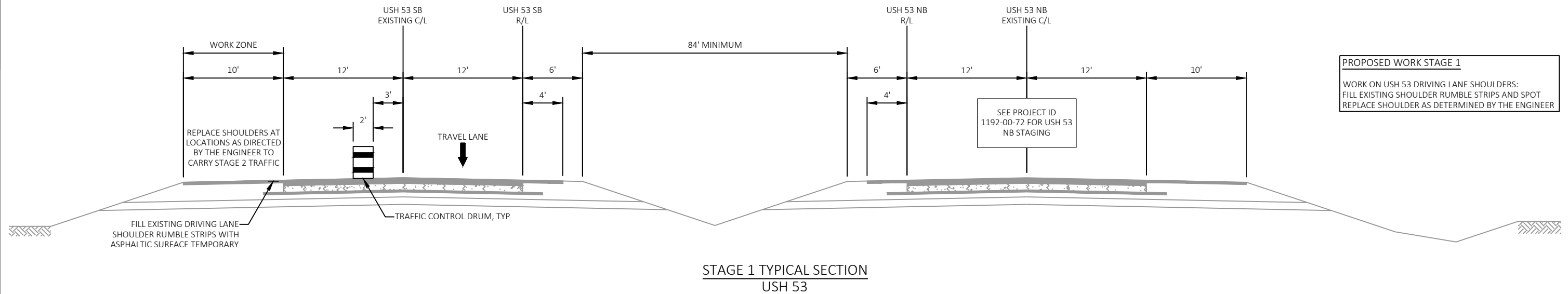
PCMS GENERAL NOTES

- ADJUST TRAFFIC CONTROL PCMS MESSAGES AS NEEDED BASED ON CONSTRUCTION SCHEDULE.
- CONSIDER GEOMETRICS WHEN LOCATING MESSAGE BOARDS SO THE DRIVER HAS A CLEAR VIEW OF THE BOARD FOR A MINIMUM OF 1,000 FEET IN FRONT OF THE MESSAGE BOARD. PLACE MESSAGE BOARDS AS FAR AWAY FROM LIVE TRAFFIC LANES AS POSSIBLE WITHOUT HAMPERING VISIBILITY.
- PLACE TRAFFIC CONTROL SIGNS PCMS AND DISPLAY THE MESSAGE 7 DAYS PRIOR TO THE EXPECTED START OF THE PROPOSED WORK. ADJUST THE MESSAGE DATE ACCORDINGLY.
- COORDINATE WITH WORK SHOWN IN PROJECT ID 1192-00-72. TRAFFIC CONTROL SIGNS PCMS FOR WORK ON USH 53 NB RAMPs AT CTH M ARE INCLUDED IN THIS PLAN.

TRAFFIC CONTROL SIGNS PCMS MESSAGES					
		PRIOR TO CONSTRUCTION		DURING RAMP WIDTH RESTRICTIONS	
PCMS SIGN LOCATION		PHASE 1 (2 SEC)	PHASE 2 (2 SEC)	PHASE 1 (2 SEC)	PHASE 2 (2 SEC)
1	CTH M EB NEAR 50TH STREET	HWY M RAMP WORK	STARTS DATE	NORTH/SOUTH HWY 53 RAMP	MAX 12.5 FT WIDTH
2	CTH M WB NEAR COLUMBIA STREET	HWY M RAMP WORK	STARTS DATE	NORTH/SOUTH HWY 53 RAMP	MAX 12.5 FT WIDTH
3	USH 53 SB 0.5 MILES NORTH OF PROJECT LIMITS	HWY 53 ROAD WORK	STARTS DATE	HWY M RAMPs	MAX 12.5 FT WIDTH

LEGEND

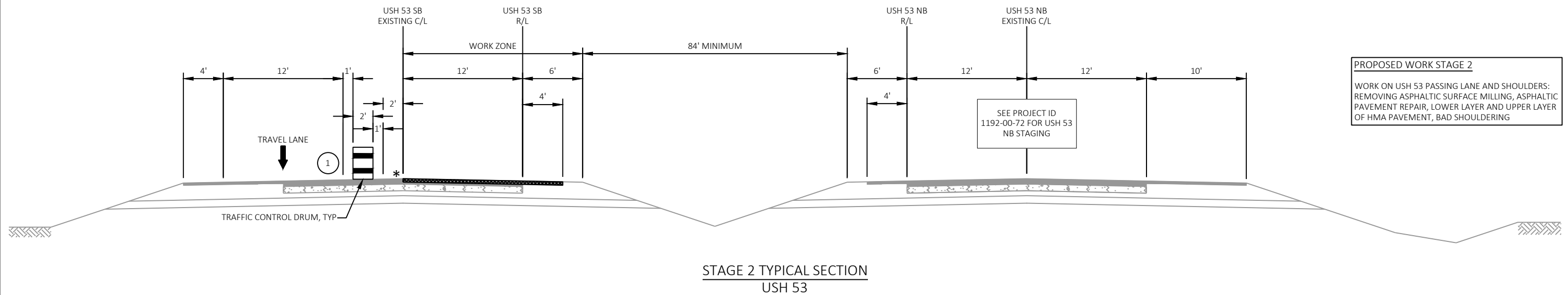




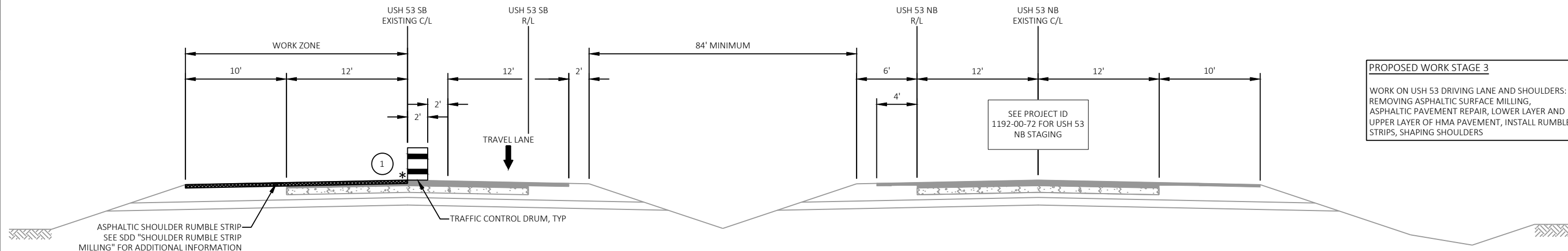
NOTES

SPOT REPLACEMENT OF SHOULDER, IF REQUIRED BY ENGINEER, WILL CONSIST OF FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT WITH ASPHALTIC SURFACE PATCHING MATCHING EXISTING

* DROP-OFFS SHALL MEET THE REQUIREMENTS OF STANDARD SPEC 104.6.1.2.3.



1 DRUM LOCATION SHOWN FOR AREAS IMMEDIATELY ADJACENT TO CONSTRUCTION ACTIVITIES, SHIFT DRUMS PAST LANE LINE IN AREAS WITH NO CONSTRUCTION ACTIVITIES UNLESS A VERTICAL DROP IS PRESENT.

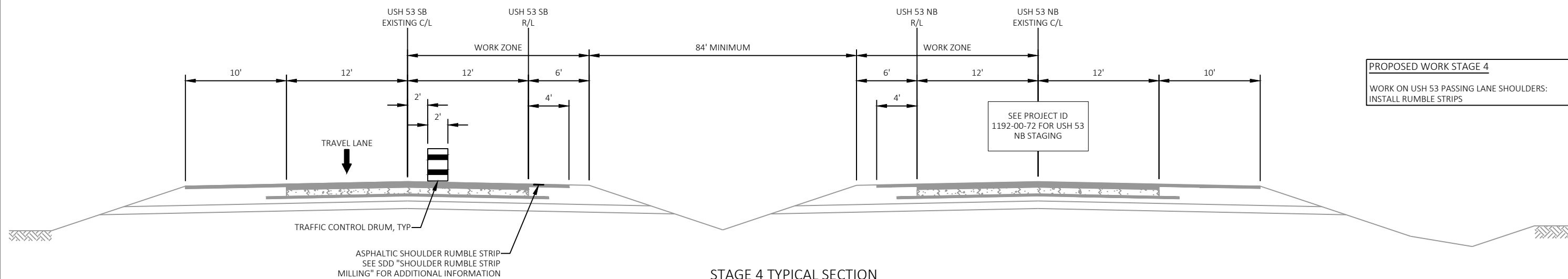


STAGE 3 TYPICAL SECTION
USH 53

1 DRUM LOCATION SHOWN FOR AREAS IMMEDIATELY ADJACENT TO CONSTRUCTION ACTIVITIES, SHIFT DRUMS PAST LANE LINE IN AREAS WITH NO CONSTRUCTION ACTIVITIES UNLESS A VERTICAL DROP IS PRESENT.

NOTE

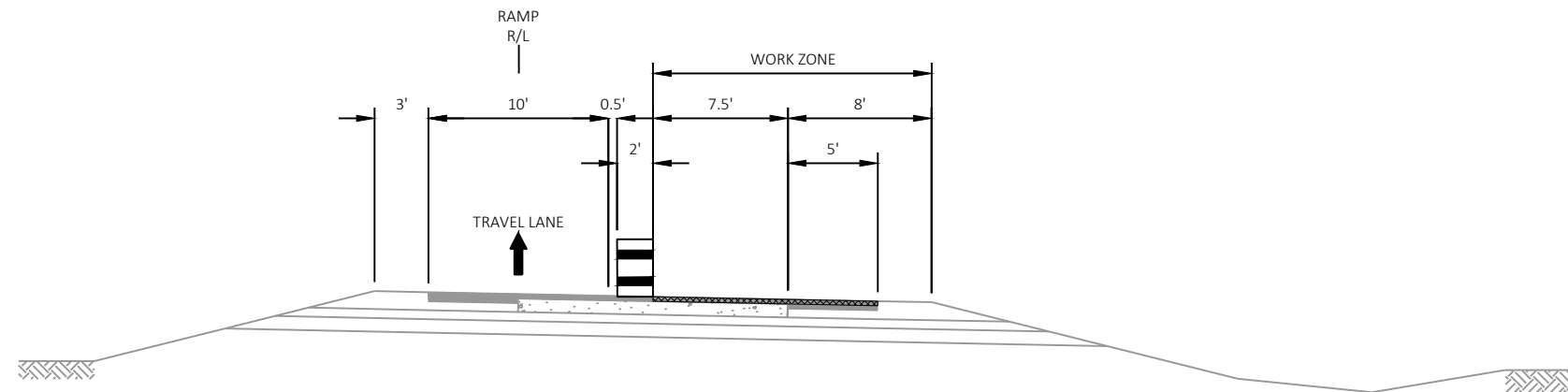
* DROP-OFFS SHALL MEET THE REQUIREMENTS OF STANDARD SPEC 104.6.1.2.3.



STAGE 4 TYPICAL SECTION
USH 53

2

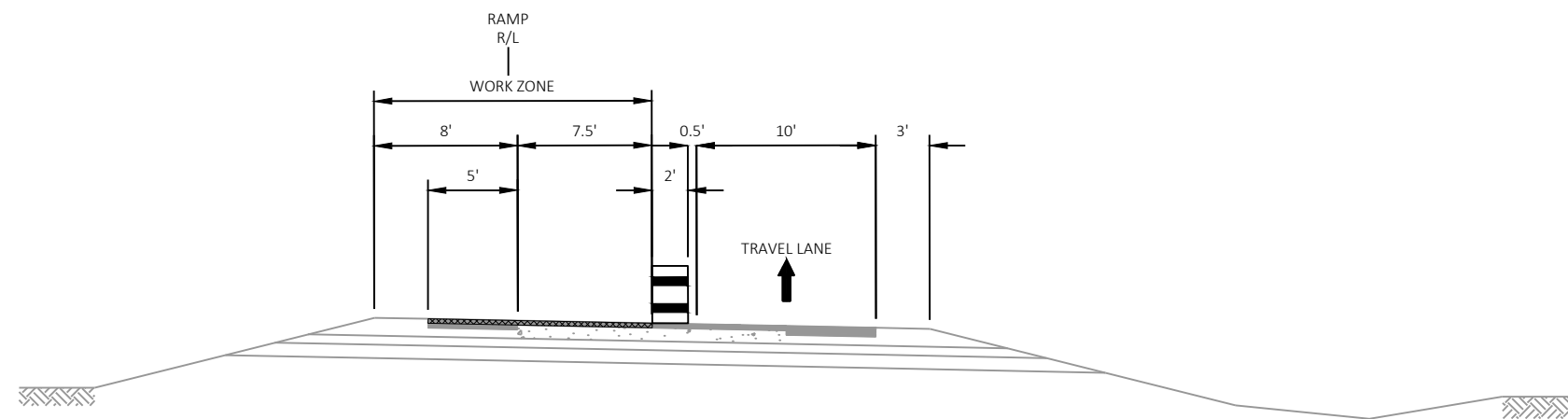
2 |



PROPOSED WORK STAGE M1

WORK ON USH 53/CTH M INTERCHANGE RAMPS
INSIDE HALF OF LANE AND SHOULDERS: MILL AND
OVERLAY

STAGE M1
USH 53 SB/CTH M RAMPS



PROPOSED WORK STAGE M2

WORK ON USH 53/CTH M INTERCHANGE RAMPS
OUTSIDE HALF OF LANE AND SHOULDERS: MILL AND
OVERLAY

STAGE M2
USH 53 SB/CTH M RAMPS

Estimate Of Quantities By Plan Sets

1192-00-73					
Line	Item	Item Description	Unit	Total	Qty
0002	204.0100	Removing Pavement	SY	540.000	540.000
0004	204.0110	Removing Asphaltic Surface	SY	1,690.000	1,690.000
0006	204.0115	Removing Asphaltic Surface Butt Joints	SY	58.000	58.000
0008	204.0125	Removing Asphaltic Surface Milling	TON	22,970.000	22,970.000
0010	204.0150	Removing Curb & Gutter	LF	40.000	40.000
0012	204.0155	Removing Concrete Sidewalk	SY	11.000	11.000
0014	204.0180	Removing Delineators and Markers	EACH	137.000	137.000
0016	204.9060.S	Removing (item description) 01. Pavement Terminal Anchors	EACH	1.000	1.000
0020	211.0100	Prepare Foundation for Asphaltic Paving (project) 02. 1192-00-73	LS	1.000	1.000
0022	211.0400	Prepare Foundation for Asphaltic Shoulders	STA	15.000	15.000
0026	213.0100	Finishing Roadway (project) 02. 1192-00-73	EACH	1.000	1.000
0028	305.0110	Base Aggregate Dense 3/4-Inch	TON	630.000	630.000
0030	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	400.000	400.000
0032	305.0500	Shaping Shoulders	STA	285.000	285.000
0034	315.0100	Asphaltic Base	TON	360.000	360.000
0036	455.0605	Tack Coat	GAL	13,080.000	13,080.000
0038	460.0105.S	HMA Percent Within Limits (PWL) Test Strip Volumetrics	EACH	0.500	0.500
0040	460.0110.S	HMA Percent Within Limits (PWL) Test Strip Density	EACH	0.500	0.500
0042	460.0115.S	HMA Pavement Test Strips Volumetrics	EACH	0.500	0.500
0044	460.0120.S	HMA Pavement Test Strips Density	EACH	0.500	0.500
0046	460.2000	Incentive Density HMA Pavement	DOL	5,770.000	5,770.000
0048	460.2005	Incentive Density PWL HMA Pavement	DOL	8,765.000	8,765.000
0050	460.2007	Incentive Density HMA Pavement Longitudinal Joints	DOL	11,250.000	11,250.000
0052	460.2010	Incentive Air Voids HMA Pavement	DOL	10,660.000	10,660.000
0054	460.7644	HMA Pavement 4 HT 58-34 V	TON	10,660.000	10,660.000
0056	460.8644	HMA Pavement 4 SMA 58-34 V	TON	9,010.000	9,010.000
0058	465.0105	Asphaltic Surface	TON	3,370.000	3,370.000
0060	465.0110	Asphaltic Surface Patching	TON	480.000	480.000
0062	465.0125	Asphaltic Surface Temporary	TON	70.000	70.000
0064	465.0400	Asphaltic Shoulder Rumble Strips	LF	54,490.000	54,490.000
0066	520.8700	Cleaning Culvert Pipes	EACH	27.000	27.000
0068	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	40.000	40.000
0070	602.0405	Concrete Sidewalk 4-Inch	SF	100.000	100.000
0072	614.0400	Adjusting Steel Plate Beam Guard	LF	175.000	175.000
0076	618.0100	Maintenance And Repair of Haul Roads (project) 02. 1192-00-73	EACH	1.000	1.000
0078	619.1000	Mobilization	EACH	0.500	0.500
0080	620.0200	Concrete Median Blunt Nose	SF	125.000	125.000

Estimate Of Quantities By Plan Sets

1192-00-73

Line	Item	Item Description	Unit	Total	Qty
0082	624.0100	Water	MGAL	6.000	6.000
0084	625.0100	Topsoil	SY	3,990.000	3,990.000
0086	628.1905	Mobilizations Erosion Control	EACH	3.000	3.000
0088	628.1910	Mobilizations Emergency Erosion Control	EACH	3.000	3.000
0090	628.2004	Erosion Mat Class I Type B	SY	3,990.000	3,990.000
0092	628.7015	Inlet Protection Type C	EACH	6.000	6.000
0094	628.7504	Temporary Ditch Checks	LF	95.000	95.000
0096	628.7555	Culvert Pipe Checks	EACH	10.000	10.000
0098	629.0210	Fertilizer Type B	CWT	250.000	250.000
0100	630.0130	Seeding Mixture No. 30	LB	75.000	75.000
0102	632.0201	Shrubs (species) (size) (root) 01. Dogwood, Redosier, Container, 2-Foot Ht.	EACH	120.000	120.000
0104	632.0201	Shrubs (species) (size) (root) 02. Filbert, American, Container, 2-Foot Ht.	EACH	120.000	120.000
0106	632.0201	Shrubs (species) (size) (root) 03. Ninebark, Common, Container, 2-Foot Ht.	EACH	120.000	120.000
0108	632.9101	Landscape Planting Surveillance and Care Cycles	EACH	20.000	20.000
0110	633.0100	Delineator Posts Steel	EACH	93.000	93.000
0112	633.0500	Delineator Reflectors	EACH	96.000	96.000
0114	633.5200	Markers Culvert End	EACH	47.000	47.000
0116	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	5.000	5.000
0118	635.0200	Sign Supports Structural Steel HS	LB	4,071.000	4,071.000
0120	636.0100	Sign Supports Concrete Masonry	CY	6.600	6.600
0122	636.0500	Sign Supports Steel Reinforcement	LB	966.000	966.000
0124	637.1220	Signs Type I Reflective SH	SF	573.000	573.000
0126	638.2102	Moving Signs Type II	EACH	5.000	5.000
0128	638.2601	Removing Signs Type I	EACH	2.000	2.000
0130	638.3000	Removing Small Sign Supports	EACH	5.000	5.000
0132	638.3100	Removing Structural Steel Sign Supports	EACH	4.000	4.000
0134	638.4000	Moving Small Sign Supports	EACH	5.000	5.000
0136	642.5001	Field Office Type B	EACH	0.500	0.500
0138	643.0300	Traffic Control Drums	DAY	34,218.000	34,218.000
0140	643.0420	Traffic Control Barricades Type III	DAY	2,606.000	2,606.000
0142	643.0705	Traffic Control Warning Lights Type A	DAY	5,212.000	5,212.000
0144	643.0715	Traffic Control Warning Lights Type C	DAY	3,376.000	3,376.000
0146	643.0800	Traffic Control Arrow Boards	DAY	176.000	176.000
0148	643.0900	Traffic Control Signs	DAY	4,496.000	4,496.000
0150	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0152	643.1000	Traffic Control Signs Fixed Message	SF	37.000	37.000
0154	643.1050	Traffic Control Signs PCMS	DAY	51.000	51.000

Estimate Of Quantities By Plan Sets

1192-00-73

Line	Item	Item Description	Unit	Total	Qty
0156	643.5000	Traffic Control	EACH	0.500	0.500
0158	646.1020	Marking Line Epoxy 4-Inch	LF	430.000	430.000
0160	646.1040	Marking Line Grooved Wet Ref Epoxy 4-Inch	LF	56,210.000	56,210.000
0162	646.1555	Marking Line Grooved Contrast Permanent Tape 4-Inch	LF	7,200.000	7,200.000
0164	646.3555	Marking Line Grooved Contrast Permanent Tape 8-Inch	LF	1,660.000	1,660.000
0166	646.7220	Marking Chevron Epoxy 24-Inch	LF	120.000	120.000
0168	646.8120	Marking Curb Epoxy	LF	170.000	170.000
0170	646.8220	Marking Island Nose Epoxy	EACH	1.000	1.000
0172	646.9000	Marking Removal Line 4-Inch	LF	550.000	550.000
0174	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	4,430.000	4,430.000
0176	649.0250	Temporary Marking Line Removable Tape 8-Inch	LF	1,400.000	1,400.000
0178	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	40.000	40.000
0180	650.8000	Construction Staking Resurfacing Reference	LF	30,364.000	30,364.000
0184	650.9910	Construction Staking Supplemental Control (project) 02. 1192-00-73	LS	1.000	1.000
0186	690.0150	Sawing Asphalt	LF	1,930.000	1,930.000
0188	690.0250	Sawing Concrete	LF	290.000	290.000
0190	740.0440	Incentive IRI Ride	DOL	21,430.000	21,430.000
0192	SPV.0090	Special 01. Ditch Cleaning	LF	1,090.000	1,090.000
0196	SPV.0105	Special 02. Material Transfer Vehicle 1192-00-73	LS	1.000	1.000
0198	SPV.0105	Special 03. Culvert Repair	LS	1.000	1.000
0200	SPV.0165	Special 01. Concrete Cure and Seal Treatment	SF	345.000	345.000
0202	SPV.0180	Special 01. Base Patching Asphaltic Partial Depth	SY	1,000.000	1,000.000
0204	SPV.0180	Special 02. Shredded Hardwood Bark Mulch	SY	650.000	650.000

3

REMOVAL ITEMS									
						204.0115 REMOVING ASPHALTIC SURFACE BUTT JOINTS SY	204.0125 REMOVING ASPHALTIC SURFACE MILLING TON	204.0180* REMOVING DELINEATORS AND MARKERS EACH	
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT				COMMENTS
0010	1013+55	-	1070+00	LT&RT	"SB"	4	2,190	--	PASSING LANE AND SHOULDER
	1013+55	-	1070+00	LT&RT	"SB"	3	1,670	--	DRIVING LANE
	1013+55	-	1070+00	LT&RT	"SB"	2	710	--	DRIVING LANE SHOULDER
	1070+00	-	1120+91	LT&RT	"SB"	6	1,990	--	PASSING LANE AND SHOULDER
	1070+00	-	1120+91	LT&RT	"SB"	4	1,490	--	DRIVING LANE
	1070+00	-	1120+91	LT&RT	"SB"	4	640	--	DRIVING LANE SHOULDER
	1122+68	-	1180+00	LT&RT	"SB"	6	2,260	--	PASSING LANE AND SHOULDER
	1122+68	-	1180+00	LT&RT	"SB"	4	1,690	--	DRIVING LANE
	1122+68	-	1180+00	LT&RT	"SB"	4	730	--	DRIVING LANE SHOULDER
	1180+00	-	1244+00	LT&RT	"SB"	--	2,500	--	PASSING LANE AND SHOULDER
	1180+00	-	1244+00	LT&RT	"SB"	--	1,880	--	DRIVING LANE
	1180+00	-	1244+00	LT&RT	"SB"	--	810	--	DRIVING LANE SHOULDER
	1244+00	-	1296+46	LT&RT	"SB"	4	2,030	--	PASSING LANE AND SHOULDER
	1244+00	-	1296+46	LT&RT	"SB"	3	1,530	--	DRIVING LANE
	1244+00	-	1296+46	LT&RT	"SB"	2	410	--	DRIVING LANE SHOULDER
	312+30	-	319+79	LT&RT	"C"	6	140	7	SOUTHBOUND EXIT RAMP
	400+00	-	413+24	LT&RT	"D"	6	300	13	SOUTHBOUND ENTRANCE RAMP
	PROJECT						--	--	70
TOTALS						58	22,970	90	
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE									

BASE AGGREGATE ITEMS								
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	305.0110* BASE AGGREGATE DENSE 3/4-INCH TON	305.0500 SHAPING SHOULDERS STA	COMMENTS
0010	1013+55	-	1070+00	LT&RT	"SB"	115	--	PASSING LANE AND SHOULDER
	1013+55	-	1070+00	LT&RT	"SB"	--	57	DRIVING LANE SHOULDER
	1070+00	-	1120+91	LT&RT	"SB"	105	--	PASSING LANE AND SHOULDER
	1070+00	-	1120+91	LT&RT	"SB"	--	51	DRIVING LANE SHOULDER
	1122+68	-	1180+00	LT&RT	"SB"	117	--	PASSING LANE AND SHOULDER
	1122+68	-	1180+00	LT&RT	"SB"	--	58	DRIVING LANE SHOULDER
	1180+00	-	1244+00	LT&RT	"SB"	129	--	PASSING LANE AND SHOULDER
	1180+00	-	1244+00	LT&RT	"SB"	--	64	DRIVING LANE SHOULDER
	1244+00	-	1296+46	LT&RT	"SB"	108	--	PASSING LANE AND SHOULDER
	1244+00	-	1296+46	LT&RT	"SB"	--	33	DRIVING LANE SHOULDER
	312+30	-	319+79	LT&RT	"C"	15	8	SOUTHBOUND EXIT RAMP
	400+00	-	413+24	LT&RT	"D"	30	14	SOUTHBOUND ENTRANCE RAMP
TOTALS						619	285	
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE								

MISCELLANEOUS ASPHALATIC ITEMS				
		211.0100.02 PREPARE FOUNDATION FOR ASPHALTIC PAVING (1192-00-73) LS	213.0100.02 FINISHING ROADWAY (1192-00-73) EACH	SPV.0105.02 MATERIAL TRANSFER VEHICLE (1192-00-73) LS
CATEGORY	LOCATION			
0010	PROJECT	1	1	1
TOTALS		1	1	1

3

REMOVING PAVEMENT TERMINAL ANCHORS ITEMS												
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	204.0100 REMOVING PAVEMENT SY	204.9060.S.01 REMOVING PAVEMENT TERMINAL ANCHOR EACH	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON	315.0100 ASPHALTIC BASE TON	465.0105* ASPHALTIC SURFACE TON	690.0150* SAWING ASPHALT LF	690.0250* SAWING CONCRETE LF
0010	1065+40	-	1067+40	LT	"SB"	540	1	400	360	70	30	250
TOTALS						540	1	400	360	70	30	250
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE												

ASPHALTIC SHOULDER REPAIR ITEMS						
CATEGORY	LOCATION	204.0110* REMOVING ASPHALTIC SURFACE SY	211.0400 PREPARE FOUNDATION FOR ASPHALTIC SHOULDERS STA	465.0110* ASPHALTIC SURFACE PATCHING TON	690.0150* SAWING ASPHALT LF	COMMENTS
0010	PROJECT	1,670	15	91	1,800	REPLACE SHOULDERS AT LOCATIONS AS DIRECTED BY THE ENGINEER
TOTALS		1,670	15	91	1,800	
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE						

BASE PATCHING ITEMS		
		SPV.0180.01 BASE PATCHING ASPHALTIC PARTIAL DEPTH SY
CATEGORY	LOCATION	
0010	PROJECT	1,000
TOTAL		1,000

ASPHALTIC ITEMS																																
						455.0605	460.0105.S	460.0110.S	HMA PAVEMENT 4 HT 58-34 V				HMA PAVEMENT 4 SMA 58-34 V				460.0115.S	460.0120.S	465.0105*	465.0110*	465.0125	465.0400										
									LOWER LAYER (USH 53), UPPER LAYER (CTH M RAMPS)			UPPER LAYER																				
									UNDERLYING SURFACE: MILLED EXISTNG HMA SURFACE			UNDERLYING SURFACE: 4 HT 58-34-V																				
						HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP			HMA PERCENT WITHIN LIMITS (PWL) TEST STRIP						HMA PAVEMENT TEST STRIP VOLUMETRICS EACH			HMA PAVEMENT TEST STRIP DENSITY EACH			ASPHALTIC SURFACE TON			ASPHALTIC SURFACE PATCHING TON			ASPHALTIC SURFACE TEMPORARY TON			ASPHALTIC SHOULDER RUMBLE STRIPS LF		
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	TACK COAT GAL	VOLUMETRICS EACH	STRIP DENSITY EACH	460.7644 TON	INCENTIVE DENSITY PWL HMA PAVEMENT TON**	INCENTIVE AIR VOIDS HMA PAVEMENT TON***	460.8644 TON	INCENTIVE DENSITY HMA PAVEMENT TON****																	COMMENTS		
0010	1013+55	-	1070+00	LT&RT	"SB"	1,190	--	--	1,160	872	1,160	1,030	1,030	--	--	--	--	--	--	5,550	PASSING LANE AND SHOULDER											
	1013+55	-	1070+00	LT&RT	"SB"	910	--	--	890	890	890	780	780	--	--	--	--	--	--	--	DRIVING LANE											
	1013+55	-	1070+00	LT&RT	"SB"	450	--	--	--	--	--	--	--	--	--	710	--	--	--	5,650	DRIVING LANE SHOULDER											
	1070+00	-	1120+91	LT&RT	"SB"	1,090	--	--	1,060	795	1,060	930	930	--	--	--	--	--	--	5,090	PASSING LANE AND SHOULDER											
	1070+00	-	1120+91	LT&RT	"SB"	810	--	--	790	790	790	700	700	--	--	--	--	--	--	--	DRIVING LANE											
	1070+00	-	1120+91	LT&RT	"SB"	410	--	--	--	--	--	--	--	--	--	640	--	--	--	5,090	DRIVING LANE SHOULDER											
	1122+68	-	1180+00	LT&RT	"SB"	1,240	--	--	1,200	900	1,200	1,060	1,060	--	--	--	--	--	--	5,630	PASSING LANE AND SHOULDER											
	1122+68	-	1180+00	LT&RT	"SB"	920	--	--	900	900	900	790	790	--	--	--	--	--	--	--	DRIVING LANE											
	1122+68	-	1180+00	LT&RT	"SB"	460	--	--	--	--	--	--	--	--	--	730	--	--	--	5,730	DRIVING LANE SHOULDER											
	1180+00	-	1244+00	LT&RT	"SB"	1,360	--	--	1,330	998	1,330	1,170	1,170	--	--	--	--	--	--	6,350	PASSING LANE AND SHOULDER											
1180+00	-	1244+00	LT&RT	"SB"	1,030	--	--	1,000	1,000	1,000	880	880	--	--	--	--	--	--	--	DRIVING LANE												
1180+00	-	1244+00	LT&RT	"SB"	520	--	--	--	--	--	--	--	--	--	810	--	--	--	6,400	DRIVING LANE SHOULDER												
1244+00	-	1296+46	LT&RT	"SB"	1,110	--	--	1,080	810	1,080	950	950	--	--	--	--	--	--	5,200	PASSING LANE AND SHOULDER												
1244+00	-	1296+46	LT&RT	"SB"	830	--	--	810	810	810	720	720	--	--	--	--	--	--	--	DRIVING LANE												
1244+00	-	1296+46	LT&RT	"SB"	260	--	--	--	--	--	--	--	--	--	410	--	--	--	3,200	DRIVING LANE SHOULDER												
312+30	-	319+79	LT&RT	"C"	160	--	--	140	--	140	--	--	--	--	--	--	--	--	--	--	SOUTHBOUND EXIT RAMP											
400+00	-	413+24	LT&RT	"D"	330	--	--	300	--	300	--	--	--	--	--	--	--	--	--	600	SOUTHBOUND ENTRANCE RAMP											
PROJECT						--	0.5	0.5	--	--	--	0.5	0.5	0.5	0.5	--	380	70	--	--												
TOTALS						13,080	0.5	0.5	10,660	8,765	10,660	9,010	9,010	0.5	0.5	3,300	380	70	54,490													
NOTES																																
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE																																
UNDISTRIBUTED ASPHALTIC SURFACE TEMPORARY QUANTITY USED FOR FILLING RUMBLE STRIPS.																																
UNDISTRIBUTED ASPHALTIC SURFACE PATCHING QUANTITY USED FOR ANY REPAIRS REQUIRED AFTER MILLING IS COMPLETE AND PATCHING IN FRONT OF CURB AND GUTTER REPAIRS.																																
** DENSITY ACCEPTANCE: INCENTIVE DENSITY PWL HMA PVT 460.2005 FOR DRIVING LANE AND PASSING LANE; INSIDE SHOULDER QTY ACCEPTANCE TESTING IS BY DEPT, NOT ELIGIBLE FOR DENSITY INCENTIVE.																																
*** MIXTURE ACCEPTANCE: INCENTIVE AIR VOIDS HMA PVT 460.2010 FOR DRIVING LANE, PASSING LANE, AND INSIDE SHOULDER.																																
**** DENSITY ACCEPTANCE: INCENTIVE DENSITY HMA PAVEMENT 460.2000; MIXTURE ACCEPTANCE: QMP PER STD SPEC 460																																
PROJECT NO: 1192-00-73						HWY: USH 53			COUNTY: CHIPPEWA			MISCELLANEOUS QUANTITIES						SHEET														

3

MISCELLANEOUS CONCRETE ITEMS														
CATEGORY	STATION	OFFSET	ALIGNMENT	204.0110*	204.0150	204.0155	305.0110*	465.0110*	601.0411	602.0405	620.0200	690.0150*	690.0250*	SPV.0165.01
				REMOVING ASPHALTIC SURFACE SY	REMOVING CURB & GUTTER LF	REMOVING CONCRETE SIDEWALK SY	BASE AGGREGATE DENSE 3/4-INCH TON	ASPHALTIC SURFACE PATCHING TON	CONCRETE CURB & GUTTER 30-INCH TYPE D LF	CONCRETE SIDEWALK 4-INCH SF	CONCRETE MEDIAN BLUNT NOSE SF	SAWING ASPHALT LF	SAWING CONCRETE LF	CONCRETE CURE AND SEAL TREATMENT SF
0010	514+31	LT	"M"	1	5	--	1	1	5	--	--	9	5	15
	523+48	LT	"M"	8	10	4	4	3	10	36	65	34	15	131
	523+80	LT	"M"	2	10	--	1	1	10	--	--	14	5	30
	524+09	LT	"M"	1	5	--	1	1	5	--	--	9	5	15
	529+60	LT	"M"	8	10	7	4	3	10	64	60	34	10	154
TOTALS				20	40	11	11	9	40	100	125	100	40	345
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE														

EROSION CONTROL ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	625.0100	628.2004	628.7015	628.7504	628.7555	629.0210	630.0130	SPV.0090.01	SPV.0105.03
						TOPSOIL SY	EROSION MAT CLASS I SY	INLET PROTECTION TYPE B EACH	TEMPORARY DITCH CHECKS LF	CULVERT PIPE CHECKS EACH	FERTILIZER TYPE B CWT	SEEDING MIXTURE NO. 30 LB	DITCH CLEANING LF	CULVERT REPAIR LS
0010	1120+36		1222+30	LT	"SB"	--	--	--	--	5	--	--	--	--
	1214+90	-	1226+90	LT	"SB"	2,100	2,100	--	50	--	133	40	740	--
	1223+40	-	1267+07	LT	"SB"	1,000	1,000	--	25	--	64	18	350	--
	1267+07		529+60	RT	"SB"	60	60	--	--	--	1	1	--	1
	514+30	-	UNDISTRIBUTED	LT	"M"	30	30	5	--	--	2	1	--	--
TOTALS						3,990	3,990	6	95	10	250	75	1,090	1

SHRUBS

CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	632.0201.01	632.0201.02	632.0201.03	SPV.0180.02
						DOGWOOD, REDOSIER, CG, 2-FT EACH	FILBERT, AMERICAN, CG, 2-FT EACH	NINEBARK, COMMON, CG, 2-FT EACH	SHREDDED HARDWOOD BARK MULCH SY
01	1065+10	-	1069+95	LT	"SB"	120	120	120	650
TOTALS						120	120	120	650

LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLES

CARE CYCLE	632.9101 EACH
OCTOBER 2020	1
MAY 2021	1
JUNE 2021	2
JULY 2021	2
AUGUST 2021	2
SEPTEMBER 2021	2
OCTOBER 2021	1
MAY 2022	1
JUNE 2022	2
JULY 2022	2
AUGUST 2022	2
SEPTEMBER 2022	2
TOTAL	20

CULVERT PIPE ITEMS

CATEGORY	STATION	OFFSET	ALIGNMENT	204.0180*	520.8700	633.5200
				REMOVING DELINEATORS AND MARKERS EACH	CLEANING CULVERT PIPES EACH	MARKERS CULVERT END EACH
0010	1013+61	LT	"SB"	2	1	2
	1026+09	LT	"SB"	1	1	1
	1037+06	LT	"SB"	1	1	1
	1046+03	LT	"SB"	1	1	1
	1068+01	LT	"SB"	2	1	2
	1083+07	LT	"SB"	2	1	2
	1090+06	LT	"SB"	2	1	2
	1103+73	LT	"SB"	2	1	2
	1117+07	LT	"SB"	2	1	2
	1126+04	LT	"SB"	2	1	2
	1133+08	LT	"SB"	2	1	2
	1139+03	LT	"SB"	2	1	2
	1152+08	LT	"SB"	2	1	2
	1165+57	LT	"SB"	2	1	2
	1166+34	LT	"SB"	2	1	2
	1175+05	LT	"SB"	2	1	2
	1184+04	LT	"SB"	2	1	2
	1187+26	LT	"SB"	2	1	2
	1193+03	LT	"SB"	2	1	2
	1204+39	LT	"SB"	2	1	2
	1244+33	RT	"SB"	--	1	--
	1251+91	LT	"SB"	2	1	2
	1267+06	LT	"SB"	2	2	2
	1274+76	LT	"SB"	2	1	2
	303+35	LT	"C"	2	1	2
	407+57	LT	"D"	2	1	2
TOTALS				47	27	47
*ADDITIONAL QUANTITIES SHOWN ELSEWHERE						

EROSION CONTROL MOBILIZATION

CATEGORY	LOCATION	628.1905	628.1910
		MOBILIZATIONS EROSION CONTROL EACH	MOBILIZATIONS EMERGENCY EROSION CONTROL EACH
0010	UNDISTRIBUTED	3	3
TOTALS		3	3

REMOVING AND MOVING SIGNS

CATEGORY	LOCATION	634.0616	638.2102	638.2601	638.3000	638.3100	638.4000
		POSTS WOOD 4X6-INCH X 16-FT EACH	MOVING SIGNS TYPE II EACH	REMOVING SIGNS TYPE I EACH	REMOVING SMALL SIGN SUPPORTS EACH	REMOVING STRUCTURAL STEEL SIGN SUPPORTS EACH	MOVING SMALL SIGN SUPPORTS EACH
0010	PROJECT	5	5	2	5	4	5
TOTALS		5	5	2	5	4	5

3

DELINEATOR REFLECTOR ITEMS

CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	633.0100	633.0500		COMMENTS
						DELINEATOR	DELINEATOR		
						POSTS	STEEL	REFLECTORS	
						EACH	YELLOW	WHITE	
							EACH	EACH	
0010	1013+55	-	1070+00	LT&RT	"SB"	14	--	14	DRIVING LANE SHOULDER
		1045+34		RT	"SB"	1	2	--	MAINTENANCE CROSSOVER
	1070+00	-	1120+91	LT&RT	"SB"	13	--	13	DRIVING LANE SHOULDER
	1122+68	-	1180+00	LT&RT	"SB"	14	--	14	DRIVING LANE SHOULDER
		115898		RT	"SB"	1	2	--	MAINTENANCE CROSSOVER
	1180+00	-	1244+00	LT&RT	"SB"	16	--	16	DRIVING LANE SHOULDER
	1244+00	-	1296+46	LT&RT	"SB"	13	--	13	DRIVING LANE SHOULDER
		124406		RT	"SB"	1	2	--	MAINTENANCE CROSSOVER
	300+00	-	319+79	LT&RT	"C"	7	--	7	SOUTHBOUND EXIT RAMP
	400+00	-	423+15	LT&RT	"D"	13	--	13	SOUTHBOUND ENTRANCE RAMP
TOTALS						93	6	90	
							96		

TRAFFIC CONTROL COVERING SIGNS

CATEGORY	STAGE	STATION	OFFSET	NUMBER OF CYCLES	643.0920		COMMENTS
					TRAFFIC CONTROL COVERING SIGNS TYPE II		
					NO.	EACH	
0010	1	1284+89	LT	1	1	1	EXIT SIGN
	3	1284+89	LT	1	1	1	EXIT SIGN
TOTAL						2	

3

TYPE I SIGNS AND SUPPORTS

CATEGORY	SIGN NUMBER	SIGN CODE	SIGN DIMENSION W X H			DESCRIPTION	I-BEAM TYPE	635.0200		636.0100		636.0500		637.1220	
			IN	X	IN			SIGN SUPPORTS STRUCTURAL	STEEL HS LB	SIGN SUPPORTS CONCRETE MASONRY	CY	SIGN SUPPORTS STEEL REINFORCEMENT	LB	SIGNS TYPE I REFLECTIVE SH	SF
0010	1-1	E4-1A	288	X	132	STH 64 / CORNELL / NEW RICHMOND	W12x26	1,999	--	3.3	--	483	--	264	--
	1-2	E1-5P	108	X	30	EXIT 112	--	--	--	--	--	--	--	22.5	--
	1-3	E4-1A	288	X	132	STH 64 / CORNELL / NEW RICHMOND	W12x26	2,072	--	3.3	--	483	--	264	--
	1-4	E1-5P	108	X	30	EXIT 112	--	--	--	--	--	--	--	22.5	--
TOTALS									4,071	6.6		966		573	

TRAFFIC CONTROL ITEMS

			643.0300		643.0420		643.0705		643.0715		643.0800		643.0900		643.1000		643.1050	
			TRAFFIC CONTROL DRUMS		TRAFFIC CONTROL BARRICADES TYPE III		TRAFFIC CONTROL WARNING LIGHTS TYPE A		TRAFFIC CONTROL WARNING LIGHTS TYPE C		TRAFFIC CONTROL ARROW BOARDS		TRAFFIC CONTROL SIGNS		TRAFFIC CONTROL SIGNS FIXED MESSAGE SF**		TRAFFIC CONTROL SIGNS PCMS	
CATEGORY	STAGE	STAGE DURATION DAYS	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY	NO.	DAY
0010	PRIOR TO CONSTRUCTION	7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3	21
		1	2	390	780	30	60	60	120	35	70	2	4	48	96	--	--	--
		2	31	364	11,284	28	868	56	1,736	43	1,333	2	62	44	1,364	--	--	--
		3	49	390	19,110	30	1,470	60	2,940	35	1,715	2	98	48	2,352	--	--	--
		4	6	364	2,184	28	168	56	336	43	258	2	12	44	264	--	--	--
	M1	5	86	430	4	20	8	40	--	--	--	--	42	210	37	--	3	15
	M2	5	86	430	4	20	8	40	--	--	--	--	42	210	--	--	3	15
	TOTALS		105		34,218		2,606		5,212		3,376		176		4,496		37	

** FMS TO REMAIN IN PLACE DURING CTH M RAMP WORK (STAGES M1 AND M2)

TRAFFIC CONTROL

CATEGORY	STAGE	LOCATION	643.5000	
			TRAFFIC CONTROL EACH	
0010	ALL	PROJECT	0.5	
TOTAL			0.5	

TEMPORARY PAVEMENT MARKING ITEMS									
CATEGORY	STAGE	STATION	TO	STATION	ALIGNMENT	646.9000	649.0150		649.0250
						REMOVING	TEMPORARY MARKING LINE		TEMPORARY MARKING
						PAVEMENT	REMOVABLE TAPE 4-INCH		LINE REMOVABLE TAPE
						MARKINGS	SOLID YELLOW	SOLID WHITE	8-INCH
						LF	LF	LF	LF
0010	1	1252+69	-	1261+69	"SB"	250	200	375	250
	1	1287+20	-	1289+20	"SB"	--	--	--	450
	1	1295+24	-	1298+99	"SB"	100	--	200	--
	1	1304+46	-	1311+66	"SB"	200	--	720	--
	2	1304+46	-	1311+66	"SB"	--	720	--	--
	3	1252+69	-	1261+69	"SB"	--	200	375	250
	3	1287+20	-	1289+20	"SB"	--	--	--	450
	3	1295+24	-	1298+99	"SB"	--	--	200	--
	3	1304+46	-	1311+66	"SB"	--	--	720	--
	4	1304+46	-	1311+66	"SB"	--	720	--	--
TOTALS						550	1,840	2,590	1,400
						4,430			

GUARDRAIL ITEMS					
					614.0400
					ADJUSTING
					STEEL PLATE
					BEAM GUARD
CATEGORY	STATION	TO	STATION	OFFSET	LF
0010					
	1122+62	-	1124+37	LT	175
TOTAL					175

WATER			
CATEGORY	STAGE	LOCATION	624.0100
			MGAL
0010	ALL	PROJECT-BASE COMPACTION	6
TOTAL			6

LONG LINE PAVEMENT MARKING ITEMS																
CATEGORY	STATION	TO	STATION	OFFSET	ALIGNMENT	646.1020			646.1040		646.1555		646.3555	646.7220	646.8120	646.8220
						MARKING LINE EPOXY 4-INCH			MARKING LINE GROOVED WET REF EPOXY 4-INCH		MARKING LINE GROOVED CONTRAST PERMANENT TAPE 4-INCH		MARKING LINE GROOVED CONTRAST PERMANENT TAPE 8-INCH	MARKING CHEVRON EPOXY 24-INCH	MARKING CURB EPOXY	MARKING ISLAND NOSE EPOXY
						SOLID YELLOW	SOLID WHITE	12.5' LINE 37.5' SKIP (WHITE)	SOLID YELLOW	SOLID WHITE	3' LINE 9' SKIP (WHITE)	12.5' LINE 37.5' SKIP (WHITE)	SOLID WHITE	SOLID WHITE	SOLID YELLOW	SOLID YELLOW
						LF	LF	LF	LF	LF	LF	LF	LF	LF	LF	EACH
0010	1013+55	-	1070+00	LT&RT	"SB"	--	--	--	5,645	5,645	--	1,411	--	--	--	--
	1070+00	-	1120+91	LT&RT	"SB"	--	--	--	5,092	5,054	--	1,268	--	--	--	--
	1122+68	-	1180+00	LT&RT	"SB"	176	176	38	5,732	5,754	--	1,436	--	--	--	--
	1180+00	-	1244+00	LT&RT	"SB"	--	--	--	6,400	6,400	--	1,601	--	--	--	--
	1244+00	-	1296+46	LT&RT	"SB"	--	--	--	5,246	3,109	--	1,313	--	--	--	--
	312+30	-	319+79	LT&RT	"C"	--	--	--	--	749	171	--	514	120	--	--
	400+00	-	413+24	LT&RT	"D"	--	--	--	60	1,324	--	--	1,146	--	--	--
	514+31	-	529+60	LT	"M"	40	--	--	--	--	--	--	--	--	170	1
TOTALS						216	176	38	28,175	28,035	171	7,029	1,660	120	170	1
						430			56,210		7,200					

FIELD OFFICE		
CATEGORY	LOCATION	642.5001
		FIELD OFFICE TYPE B EACH
0010	PROJECT	0.5
TOTAL		0.5

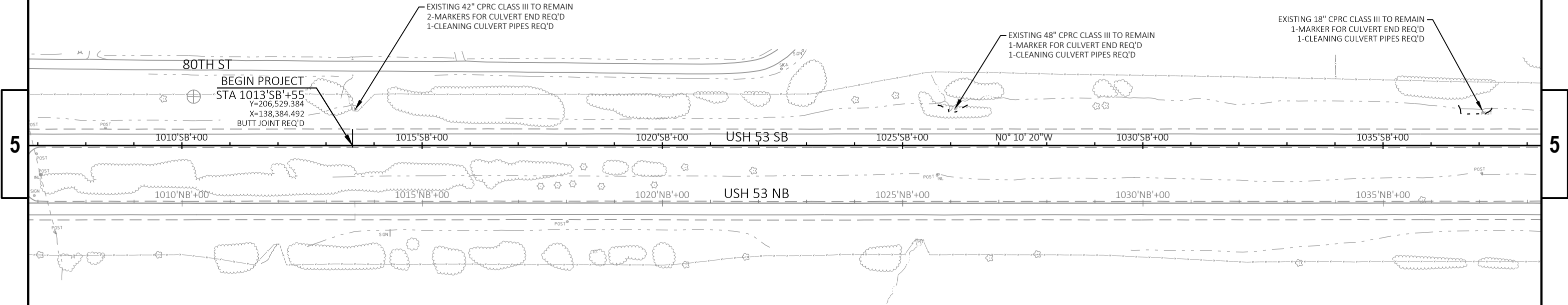
CONSTRUCTION STAKING					
CATEGORY	STAGE	LOCATION	650.5500	650.8000	650.9910.02
			CONSTRUCTION STAKING CURB GUTTER AND CURB & GUTTER	CONSTRUCTION STAKING RESURFACING REFERENCE	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (1192-00-73)
			LF	LF	LS
0010	ALL	PROJECT	40	30,364	1
TOTALS			40	30,364	1

LEGEND

DELINEATED WETLAND BOUNDARY

SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS



LEGEND

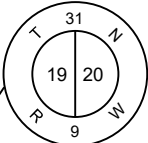
DELINEATED WETLAND BOUNDARY

SLOPE INTERCEPT

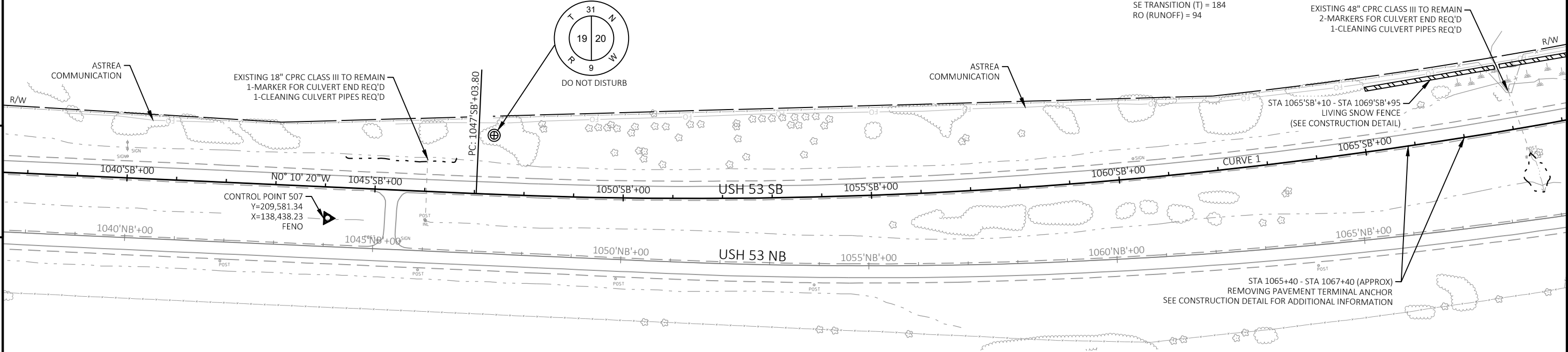
PERMITTED WETLAND IMPACTS



CURVE 1 DATA ('SB')
PT STA = 1090+61.16
Y = 214235.35
X = 138361.32
PC STA = 1047+03.80
Y=209878.01
X=138374.42
PT STA = 1129+06.08
Y=217149.92
X=135122.22
DELTA = 47°50'48"
D = 0°35'00"
T = 4357.35'
L = 8202.28'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94



DO NOT DISTURB



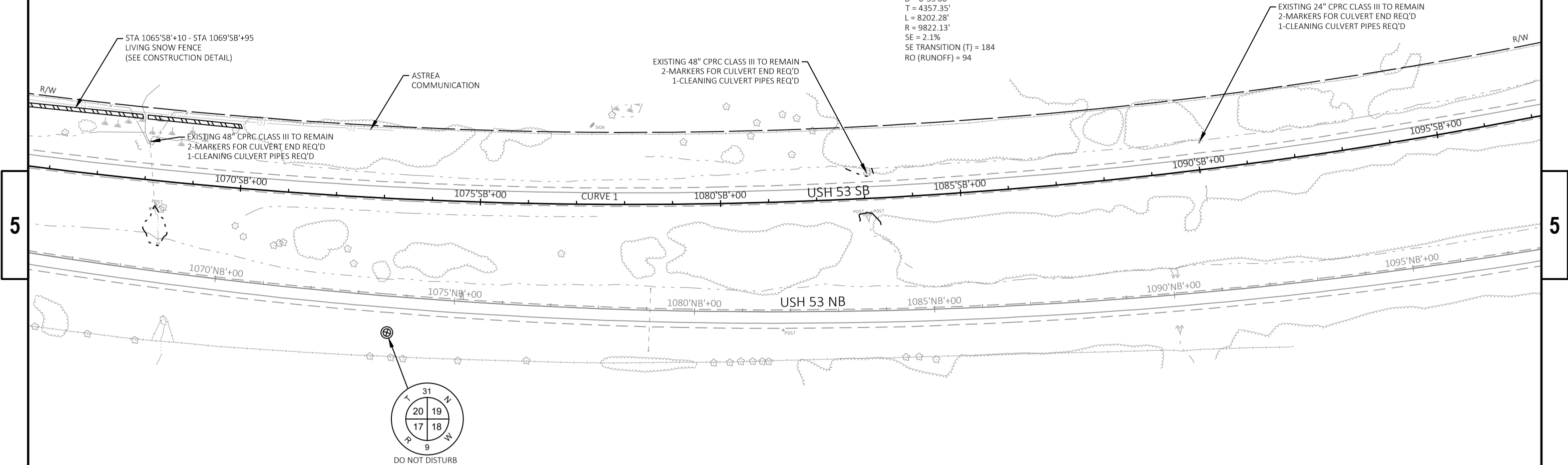
LEGEND

--- DELINEATED WETLAND BOUNDARY

--- SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

CURVE 1 DATA ('SB')
PI STA = 1090+61.16
Y = 214235.35
X = 138361.32
PC STA = 1047+03.80
Y = 209878.01
X = 138374.42
PT STA = 1129+06.08
Y = 217149.92
X = 135122.22
DELTA = 47°50'48"
D = 0°35'00"
T = 4357.35'
L = 8202.28'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94



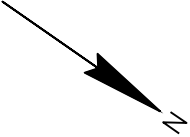
LEGEND

DELINEATED WETLAND BOUNDARY

SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

CURVE 1 DATA ('SB')
PT STA = 1090+61.16
Y = 214235.35
X = 138361.32
PC STA = 1047+03.80
Y=209878.01
X=138374.42
PT STA = 1129+06.08
Y=217149.92
X=135122.22
DELTA = 47°50'48"
D = 0°35'00"
T = 4357.35'
L = 8202.28'
R = 9822.13'
SE = 2.1%
SE TRANSITION (T) = 184
RO (RUNOFF) = 94



C-09-020
EXISTING SINGLE 6' X 3' R.C. BOX CULVERT TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

EXISTING 24" CPRC CLASS III TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

EXISTING 12" PIPE UNDERDRAIN
UNPERFORATED TO REMAIN

B-09-90
TO REMAIN
NET EXCEPTION TO CL LENGTH

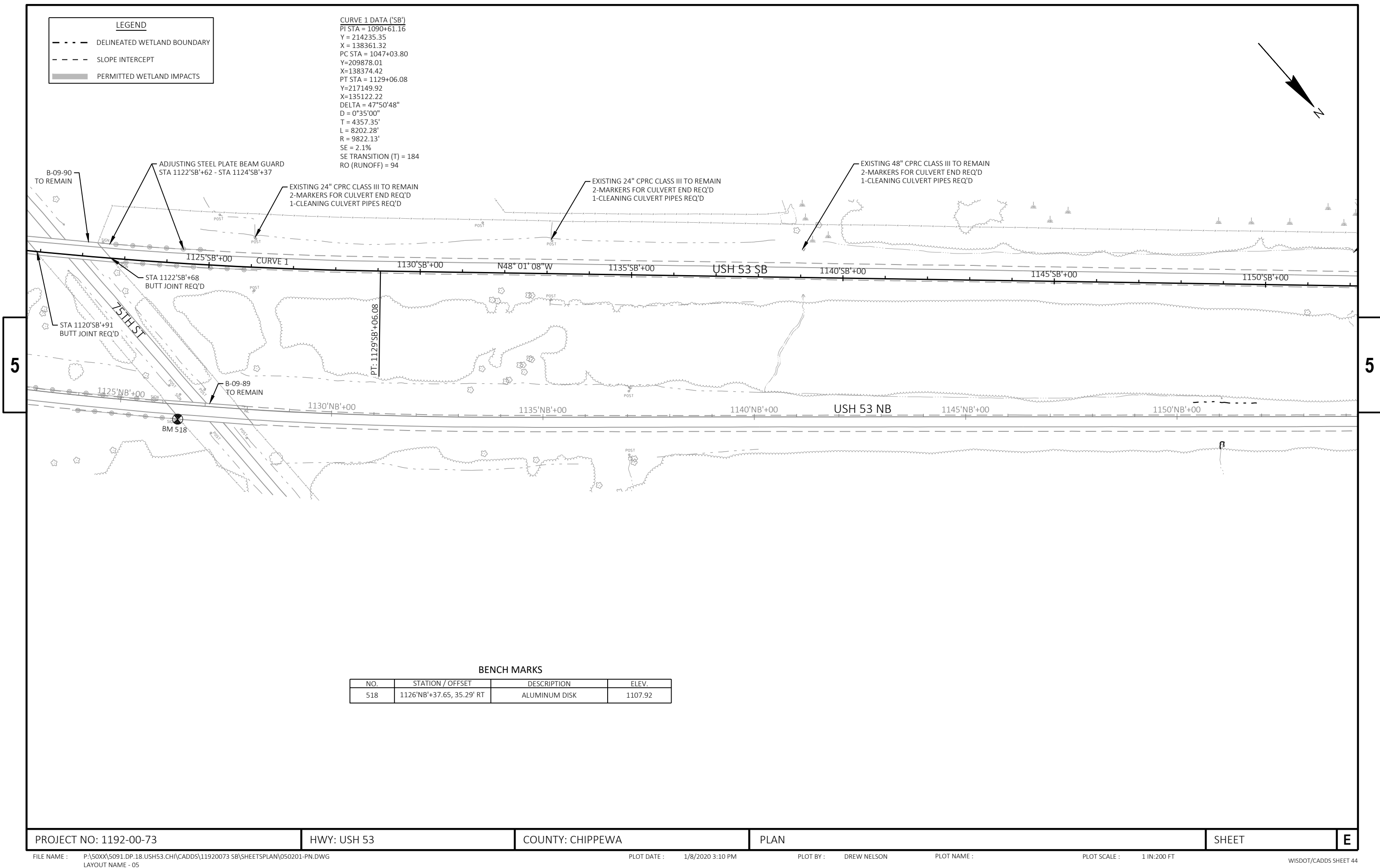
STA 1122'SB'+68
BUTT JOINT REQ'D

STA 1120'SB'+91
BUTT JOINT REQ'D

75TH ST

5

5



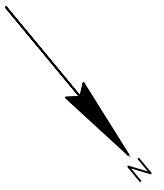
LEGEND

--- DELINEATED WETLAND BOUNDARY

--- SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

CURVE 2 DATA ('SB')
PI STA = 1177+72.61
Y = 220405.07
X = 131504.61
PC STA = 1160+46.64
Y=219250.59
X=132787.63
PT STA = 1194+95.68
Y=221425.23
X=130112.41
DELTA = 5°44'54"
D = 0°10'00"
T = 1725.97'
L = 3449.04'
R = 34377.47'
SE = NC



EXISTING 48" CPRC CLASS III TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

EXISTING 48" CPRC CLASS III TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

EXISTING 24" CPRC CLASS III TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

EXISTING 24" CPRC CLASS III TO REMAIN
2-MARKERS FOR CULVERT END REQ'D
1-CLEANING CULVERT PIPES REQ'D

PC: 1160'SB'+46.64

1155'SB'+00

N48°01'08"W

1160'SB'+00

1165'SB'+00

USH 53 SB

1170'SB'+00

CURVE 2

1175'SB'+00

1180'SB'+00

5

1155'NB'+00

1160'NB'+00

1165'NB'+00

USH 53 NB

1170'NB'+00

1175'NB'+00

1180'NB'+00

5

CONTROL POINT 508
Y=220,589.31
X=131,787.16
FENO

LEGEND

--- DELINEATED WETLAND BOUNDARY

--- SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

CURVE 2 DATA ('SB')

PT STA = 1177+72.61

Y = 220405.07

X = 131504.61

PC STA = 1160+46.64

Y=219250.59

X=132787.63

PT STA = 1194+95.68

Y=221425.23

X=130112.41

DELTA = 5°44'54"

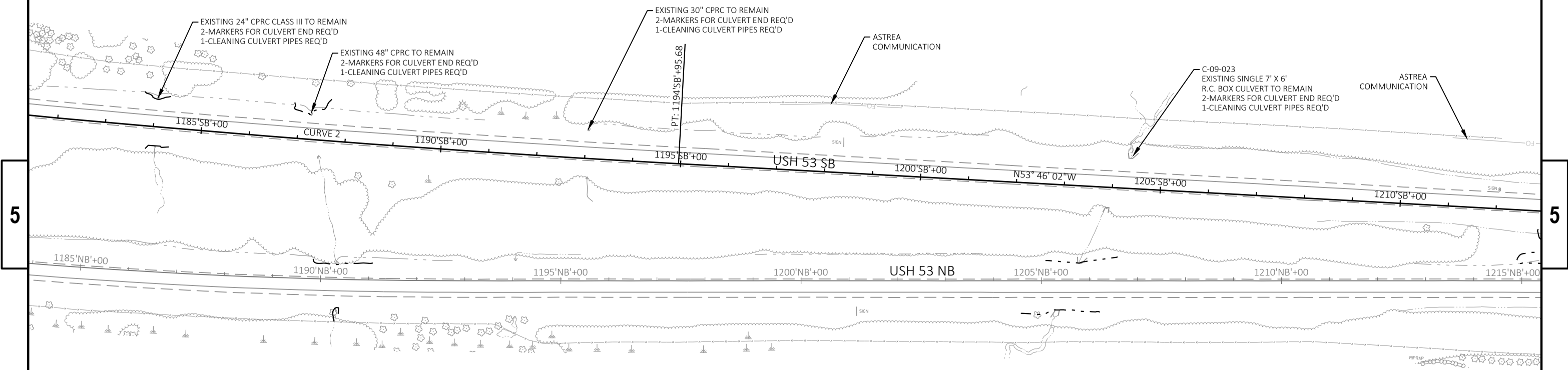
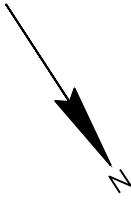
D = 0°10'00"

T = 1725.97'

L = 3449.04'

R = 34377.47'

SE = NC



LEGEND

- DELINEATED WETLAND BOUNDARY
- - - SLOPE INTERCEPT
- PERMITTED WETLAND IMPACTS

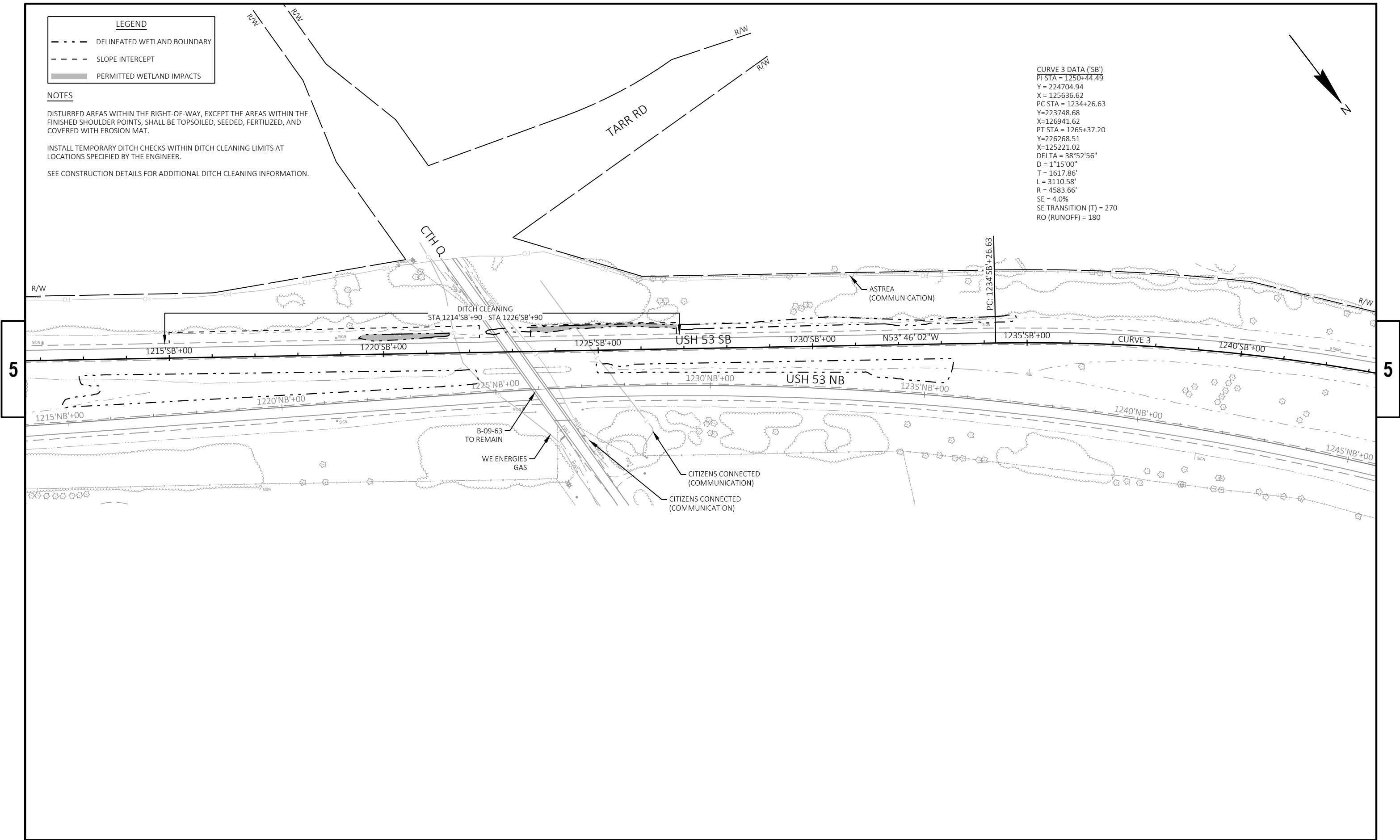
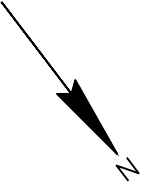
NOTES

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY, EXCEPT THE AREAS WITHIN THE FINISHED SHOULDER POINTS, SHALL BE TOPSOILED, SEEDED, FERTILIZED, AND COVERED WITH EROSION MAT.

INSTALL TEMPORARY DITCH CHECKS WITHIN DITCH CLEANING LIMITS AT LOCATIONS SPECIFIED BY THE ENGINEER.

SEE CONSTRUCTION DETAILS FOR ADDITIONAL DITCH CLEANING INFORMATION.

CURVE 3 DATA ('SB')
PI STA = 1250+44.49
Y = 224704.94
X = 125636.62
PC STA = 1234+26.63
Y=223748.68
X=126941.62
PT STA = 1265+37.20
Y=226268.51
X=125221.02
DELTA = 38°52'56"
D = 1°15'00"
T = 1617.86'
L = 3110.58'
R = 4583.66'
SE = 4.0%
SE TRANSITION (T) = 270
RO (RUNOFF) = 180



PROJECT NO: 1192-00-73	HWY: USH 53	COUNTY: CHIPPEWA	PLAN	SHEET	E
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LEGEND

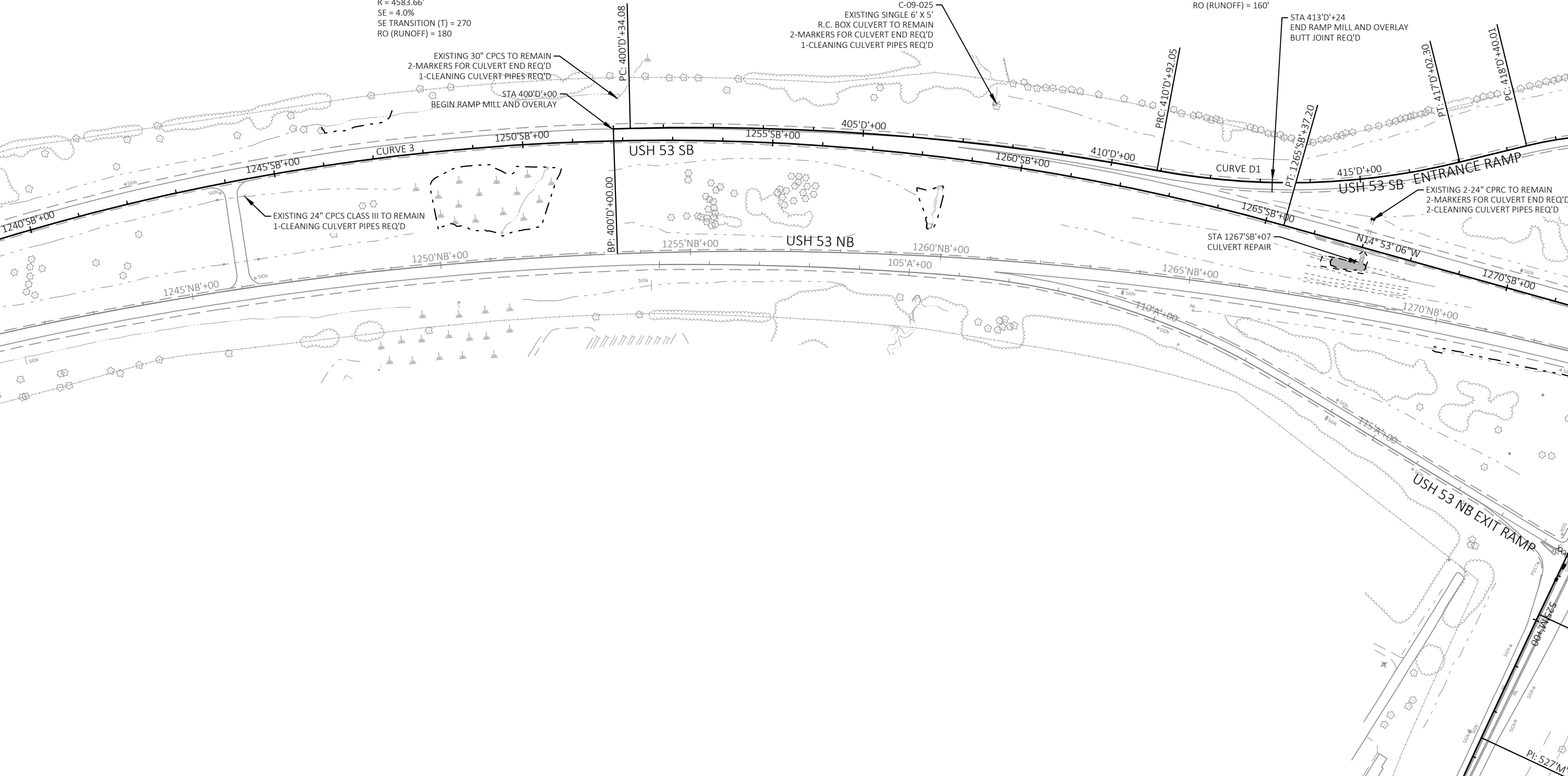
DELINEATED WETLAND BOUNDARY

SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

CURVE 3 DATA ('SB')
PI STA = 1250+44.49
Y = 224704.94
X = 125636.62
PC STA = 1234+26.63
Y = 223748.68
X = 126941.62
PT STA = 1265+37.20
Y = 226268.51
X = 125221.02
DELTA = 38°52'56"
D = 1°15'00"
T = 1617.86'
L = 3110.58'
R = 4583.66'
SE = 4.0%
SE TRANSITION (T) = 270
RO (RUNOFF) = 180

CURVE D1 DATA ('D')
PI STA = 414+01.88
Y = 226285.56
X = 125149.95
PC STA = 410+92.05
Y = 225994.29
X = 125255.56
PT STA = 417+02.30
Y = 226507.14
X = 124933.41
DELTA = 24°24'36"
D = 4°00'00"
T = 309.82'
L = 610.25'
R = 1432.39'
SE = 6.0%
SE TRANSITION (T) = 213'
RO (RUNOFF) = 160'



PROJECT NO: 1192-00-73

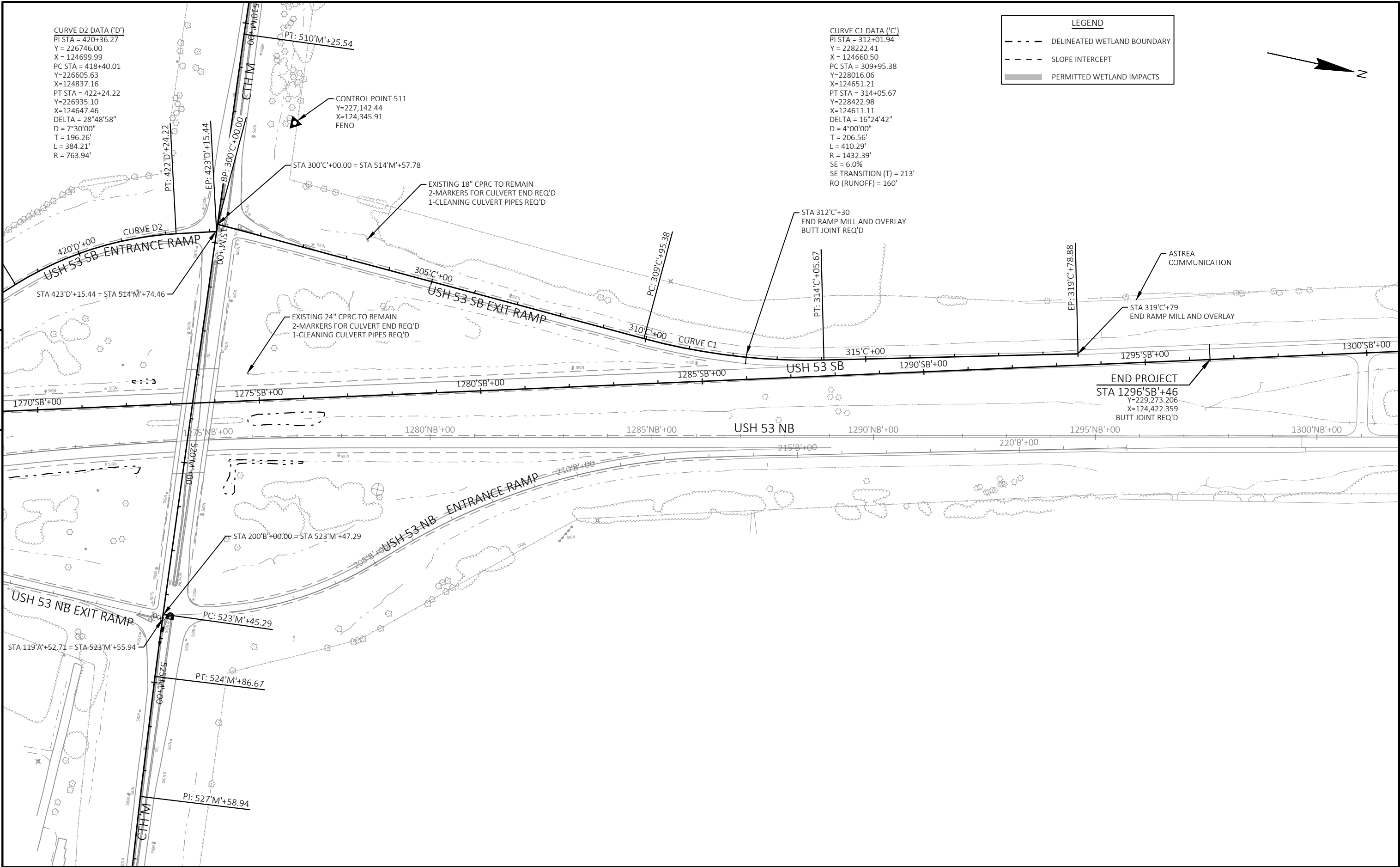
HWY: USH 53

COUNTY: CHIPPEWA

PLAN

SHEET

E



5

5

PROJECT NO: 1192-00-73	HWY: USH 53	COUNTY: CHIPPEWA	PLAN	SHEET	E
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LEGEND

--- DELINEATED WETLAND BOUNDARY

--- SLOPE INTERCEPT

PERMITTED WETLAND IMPACTS

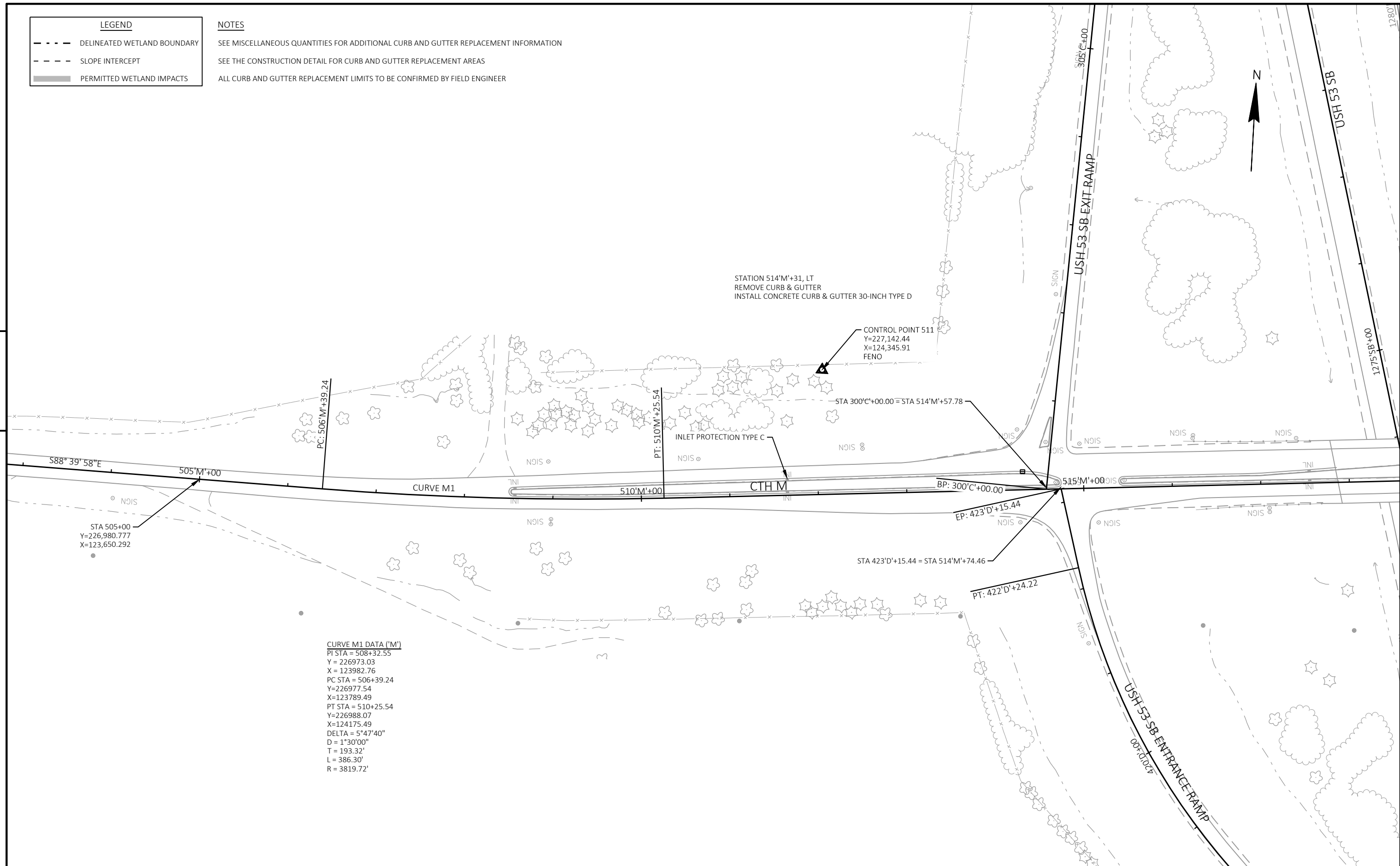
NOTES

SEE MISCELLANEOUS QUANTITIES FOR ADDITIONAL CURB AND GUTTER REPLACEMENT INFORMATION

SEE THE CONSTRUCTION DETAIL FOR CURB AND GUTTER REPLACEMENT AREAS

ALL CURB AND GUTTER REPLACEMENT LIMITS TO BE CONFIRMED BY FIELD ENGINEER

5



5

PROJECT NO:1192-00-73

HWY:USH 53

COUNTY:CHIPPEWA

PLAN - CTH M

SHEET

E

FILE NAME : P:\50XX\5091.DP.18.USH53.CH\CADD\11920073 SB\SHEETSPLAN\050201-PN.DWG
LAYOUT NAME - 11

PLOT DATE : 1/8/2020 3:11 PM

PLOT BY : DREW NELSON

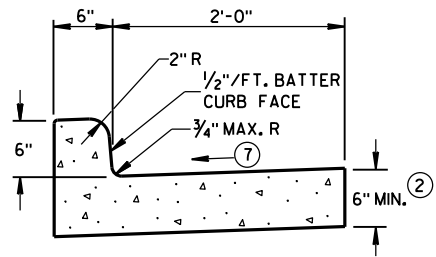
PLOT NAME :

PLOT SCALE : 1 IN:100 FT

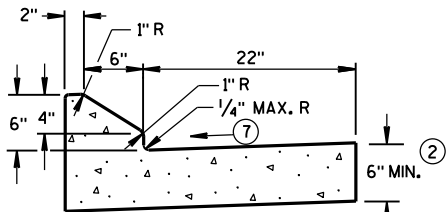
WISDOT/CADDs SHEET 44

Standard Detail Drawing List

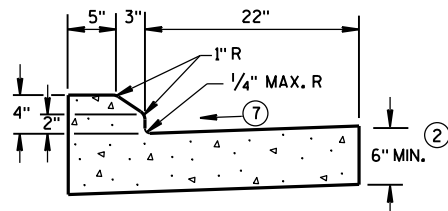
08D01-20A	CONCRETE CURB & GUTTER
08D01-20B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E15-01	CULVERT PIPE CHECK
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
13A05-05A	SHOULDER RUMBLE STRIP, MILLING
13A05-05B	SHOULDER RUMBLE STRIP, MILLING
13C19-01	HMA LONGITUDINAL JOINTS
14B15-11A	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11B	STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATION & ELEMENTS
14B15-11C	STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS
14B18-06A	STEEL PLATE BEAM GUARD, CLASS "A" (AT BRIDGES, OBSTACLES AND SIDEROADS/DRIVEWAYS)
14B18-06B	STEEL PLATE BEAM GUARD, CLASS "A" AT MEDIAN APPROACH TO BRIDGES
14B20-11A	STEEL THRIE BEAM STRUCTURE APPROACH
14B20-11B	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS
14B20-11C	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO VERTICAL FACED PARAPETS
14B20-11D	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SLOPED END PARAPETS
14B20-11E	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPES "F" AND "W"
14B20-11F	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO BRIDGE RAILING TYPE "M"
14B20-11G	STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTOR PLATE DETAIL
14B20-11H	STEEL THRIE BEAM STRUCTURE APPROACH, SINGLE SLOPE ATTACHMENT
14B24-09A	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09B	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
14B24-09C	STEEL PLATE BEAM GUARD ENERGY ABSORBING TERMINAL
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C02-07F	ADVANCED WIDTH RESTRICTION SIGNING
15C03-05	BARRICADES AND SIGNS FOR SIDEROAD CLOSURES
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M. P. H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C06-09	SIGNING & MARKING FOR TWO LANE BRIDGES
15C08-19A	LONGITUDINAL MARKING (MAINLINE)
15C11-07B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C12-07	TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION
15C19-06C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C31-03A	PAVEMENT MARKING (RAMPS AND GORES)
15D12-07B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D15-05A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05C	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05D	TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-05E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS
15D39-02	TRAFFIC CONTROL, DROP-OFF SIGNING



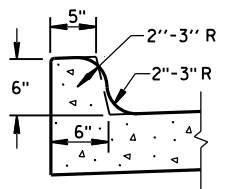
TYPES A^① & D



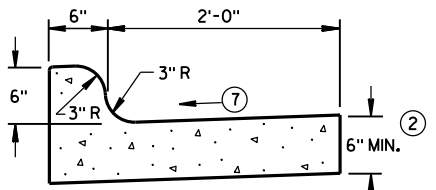
6" SLOPED CURB TYPES G^① & J



4" SLOPED CURB TYPES G^① & J

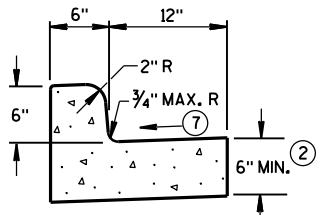


TYPES K^① & L
(OPTIONAL CURB SHAPE)



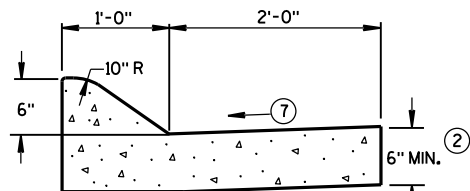
TYPES K^① & L

CONCRETE CURB & GUTTER 30"

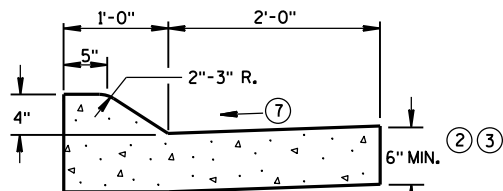


TYPES A^① & D

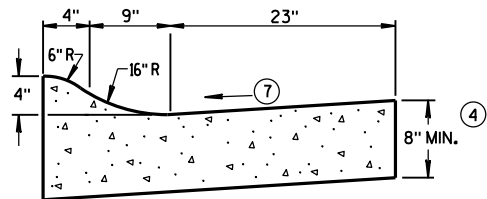
CONCRETE CURB & GUTTER 18"



6" SLOPED CURB TYPES A^① & D

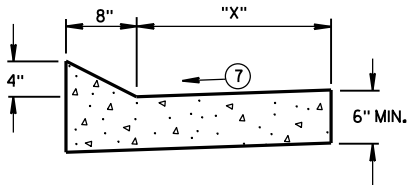


4" SLOPED CURB TYPES A^① & D



4" SLOPED CURB TYPES R^① & T^⑤

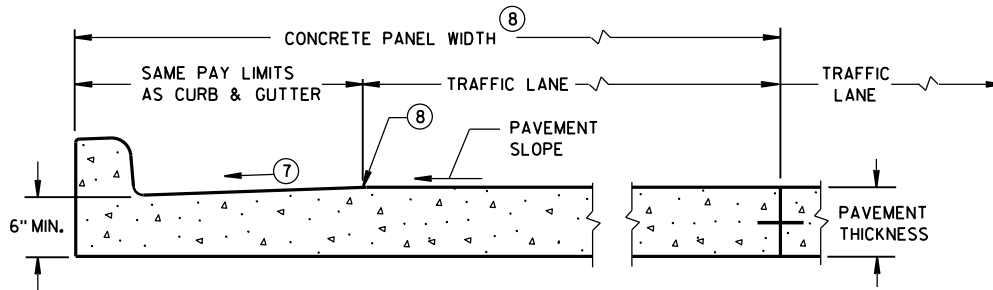
CONCRETE CURB & GUTTER 36"



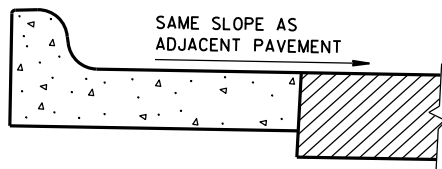
TYPES TBT & TBTT^①

CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"



PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.

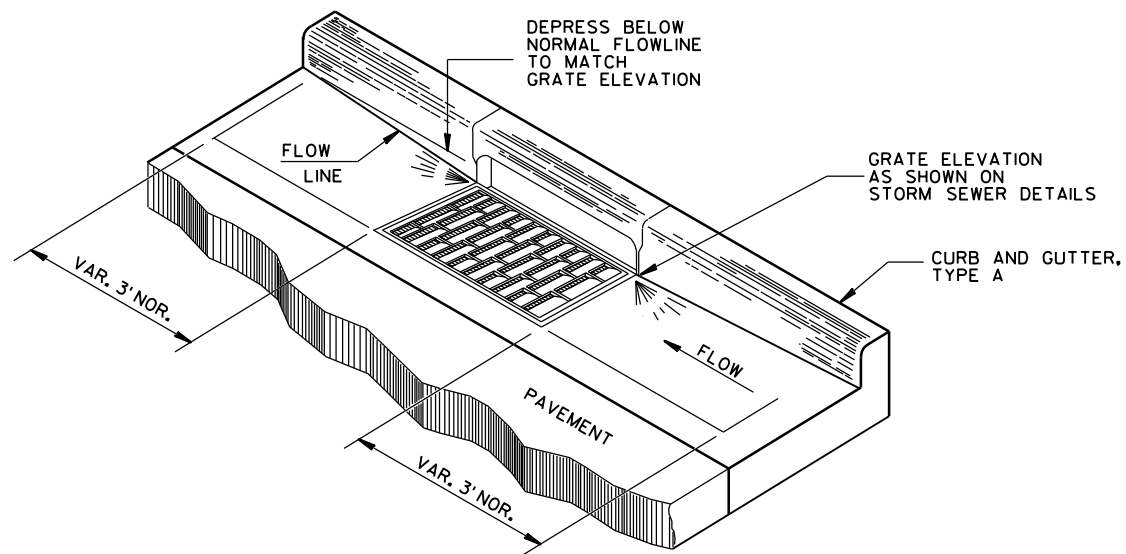
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'

* BIKE LANE IS NOT SHOWN.

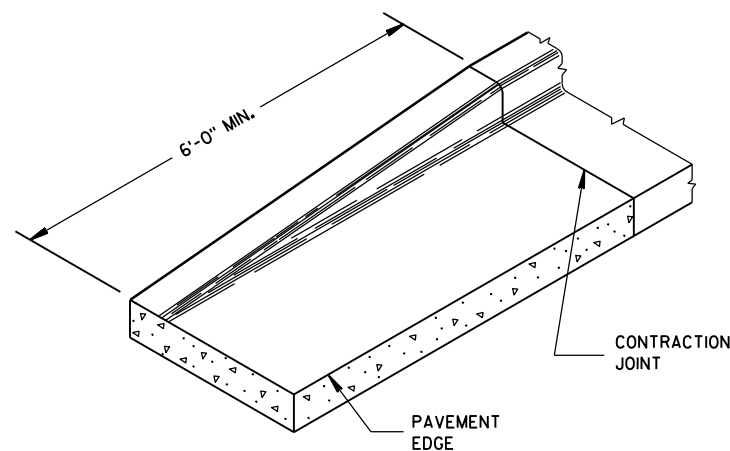
CONCRETE CURB & GUTTER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

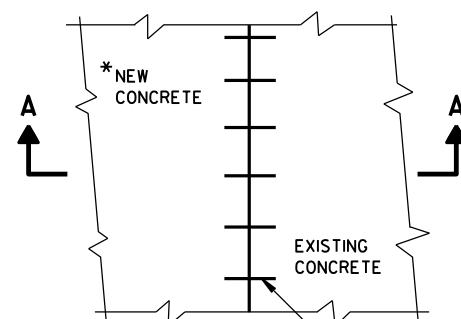


DETAIL OF CURB AND GUTTER AT INLETS

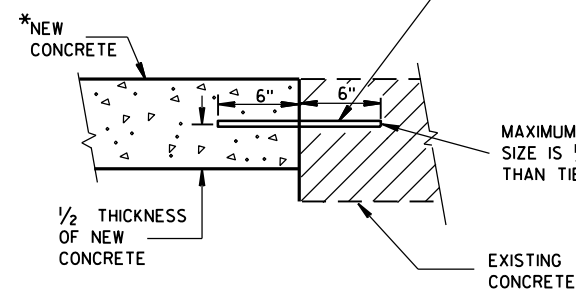
(TYPE H INLET COVER SHOWN)



END SECTION CURB & GUTTER



PLAN VIEW



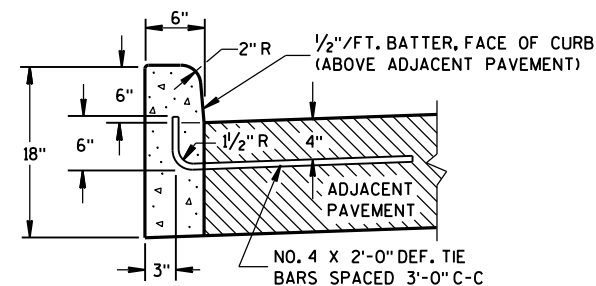
**SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT**

*NEW CURB & GUTTER,
SURFACE DRAINS,
CONCRETE PAVEMENT
OR OTHER NEW CONCRETE.

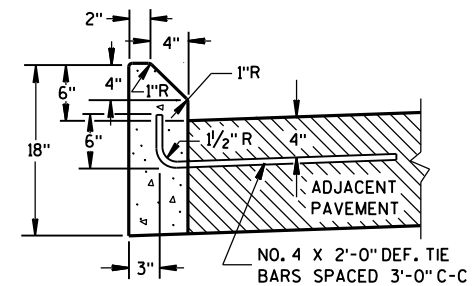
NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.

MAXIMUM DRILL HOLE
SIZE IS 1/8" GREATER
THAN TIE BAR DIAMETER

EXISTING
CONCRETE



TYPES A^① & D



TYPES G^① & J

GENERAL NOTES

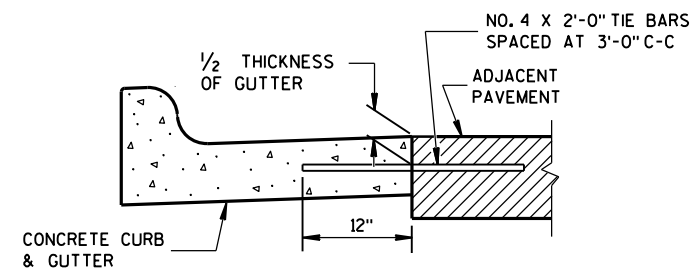
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

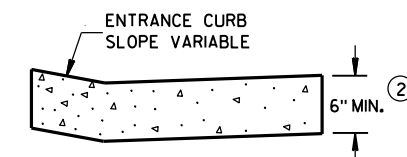
UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 8D18 AND SDD 8D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.

CONCRETE CURB



TYPICAL TIE BAR LOCATION^①



DRIVEWAY ENTRANCE CURB^⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2017

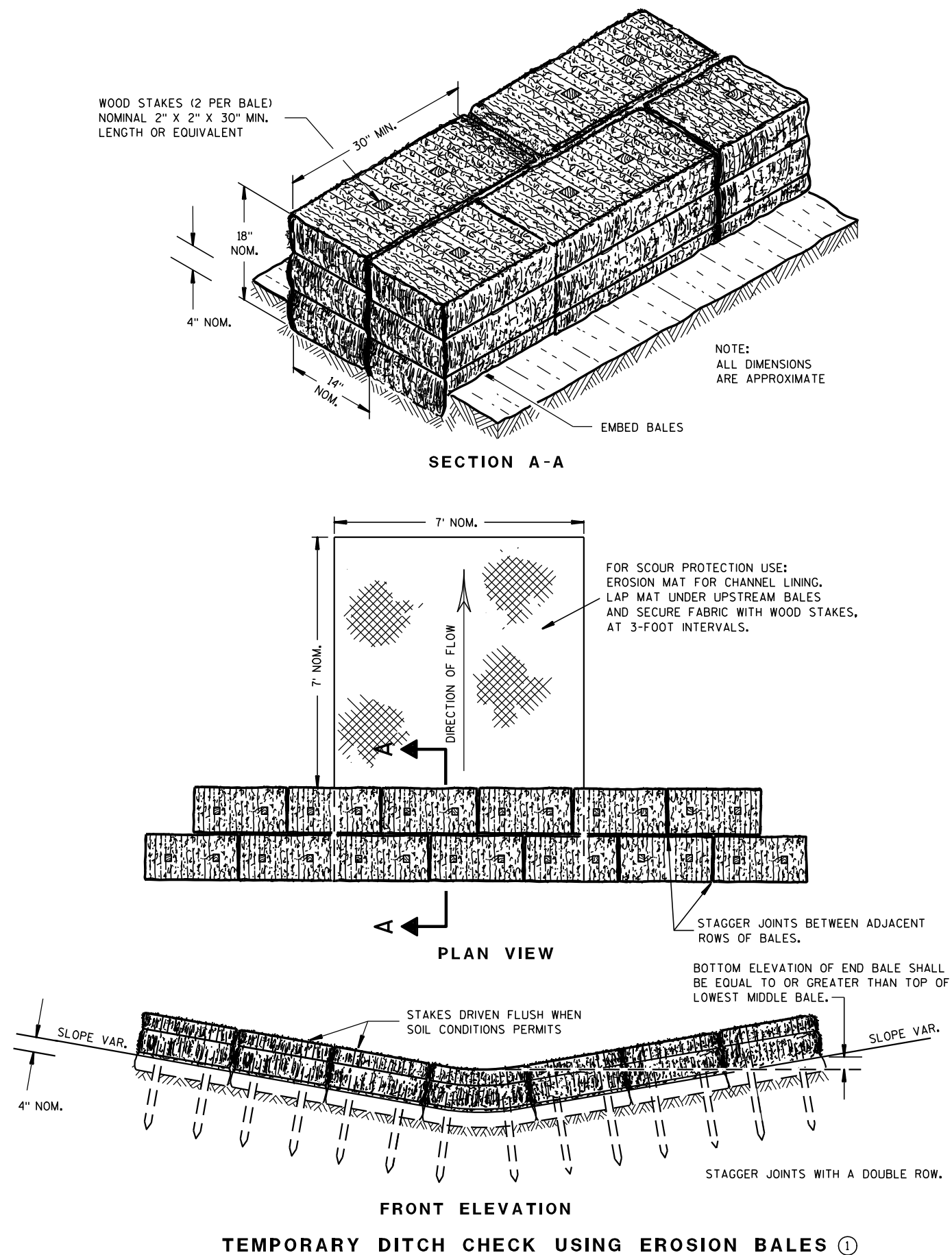
DATE

FHWA

/S/ Rodney Taylor

ROADWAY STANDARDS DEVELOPMENT

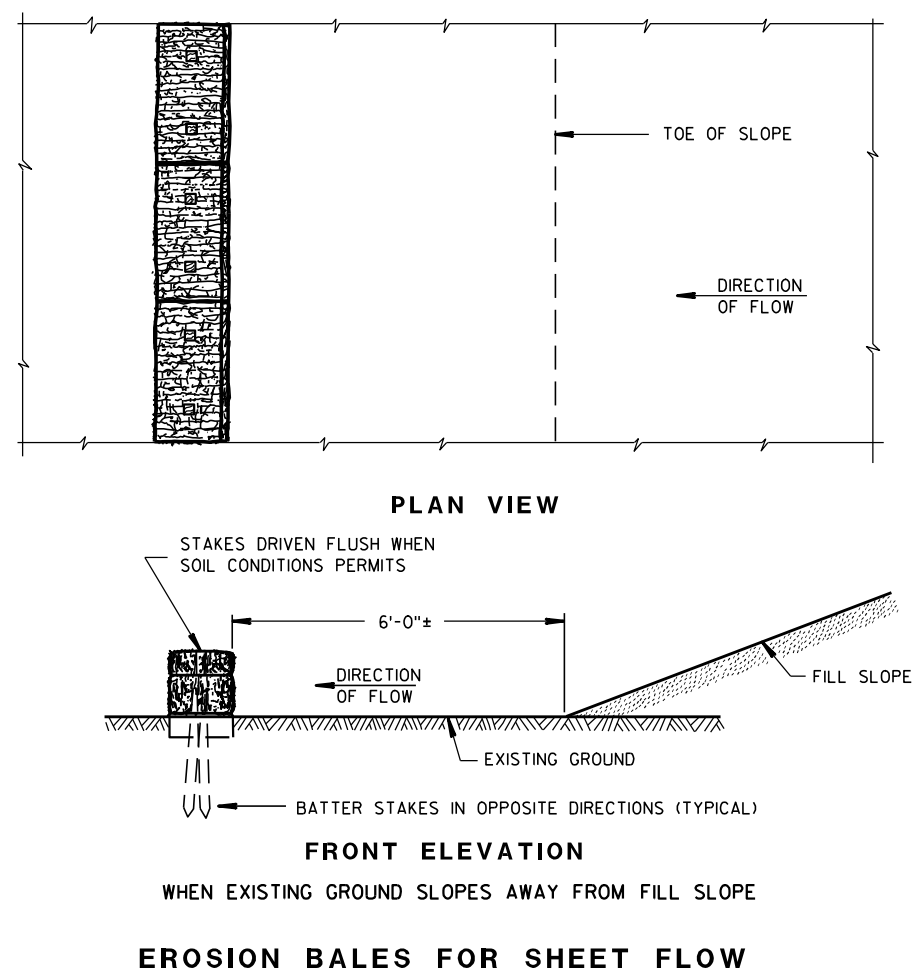
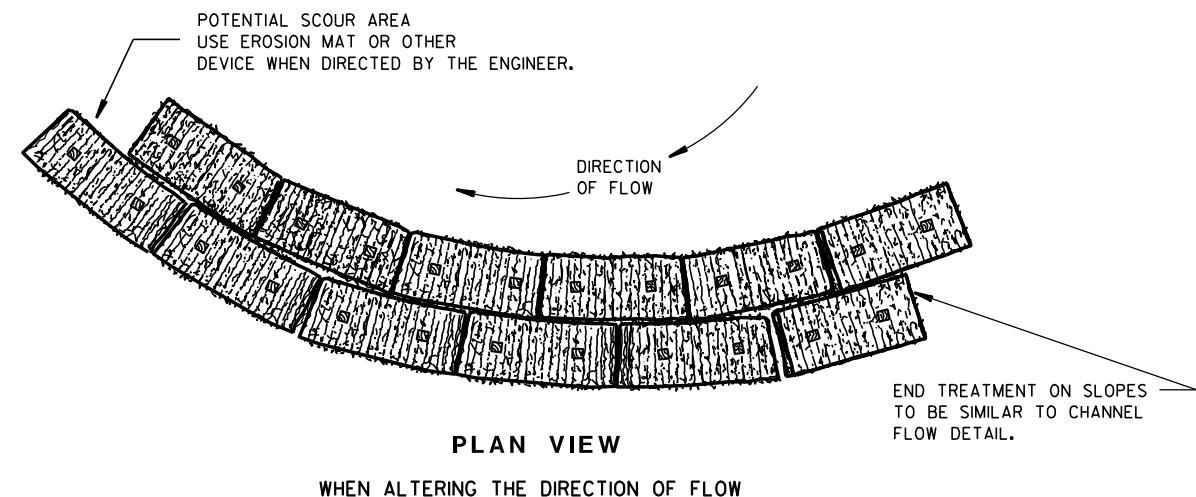
UNIT SUPERVISOR



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

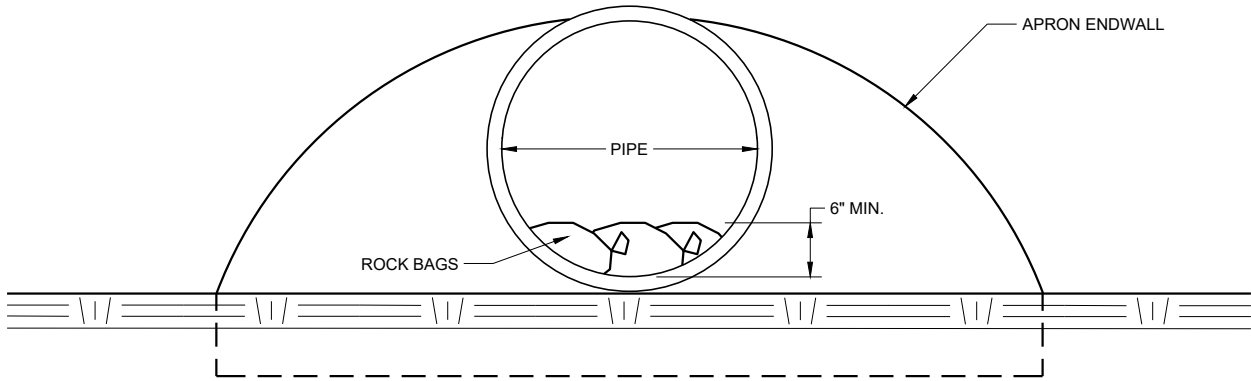
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

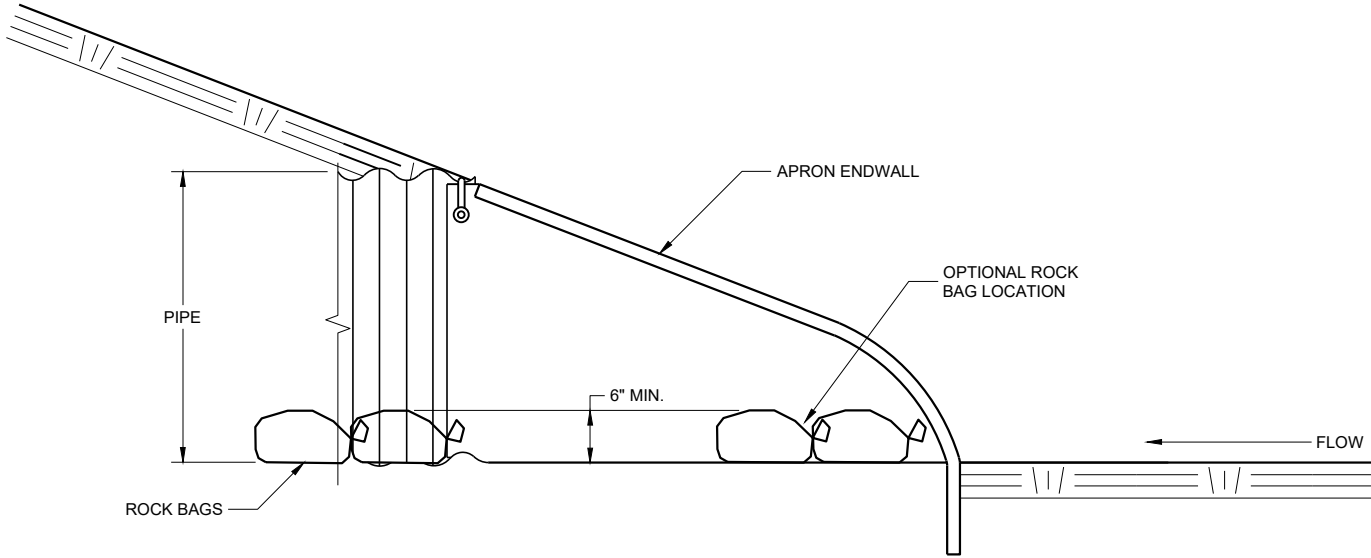
6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA

S D D 8 E 10-2



END VIEW

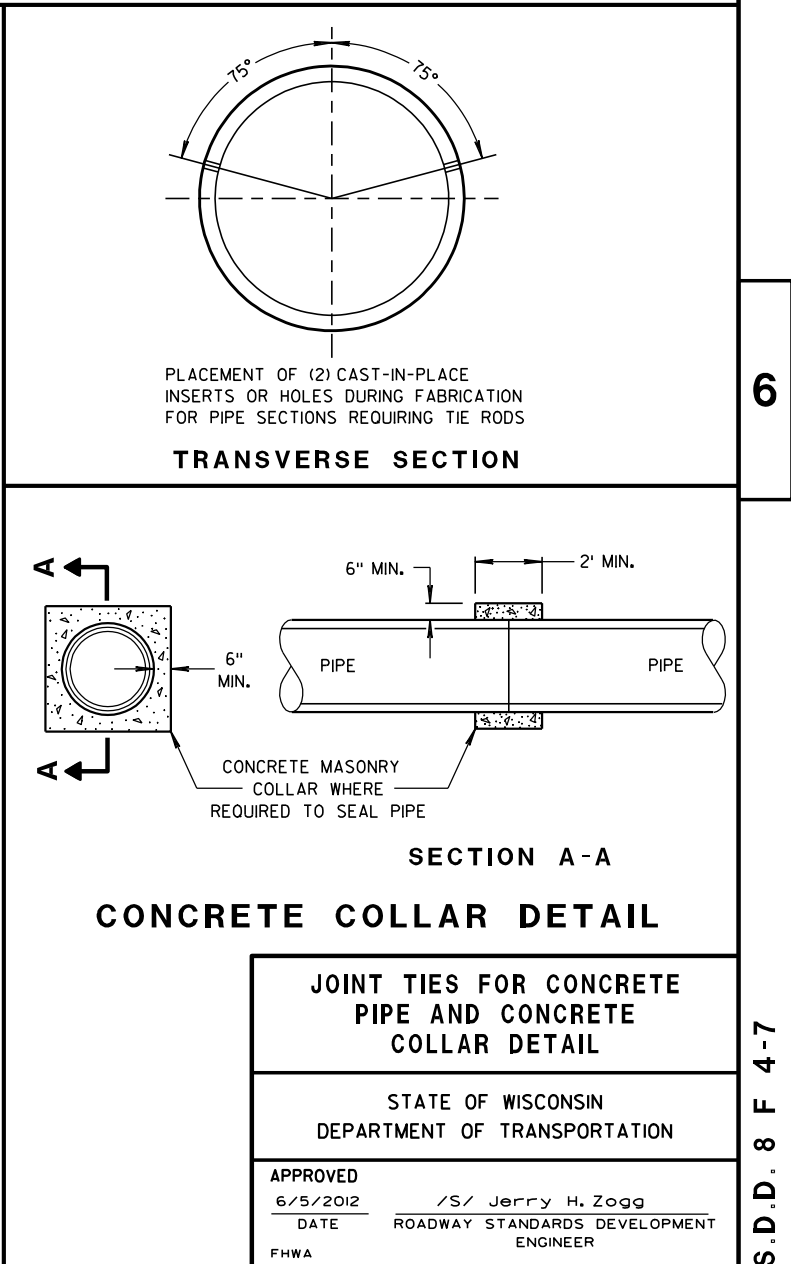
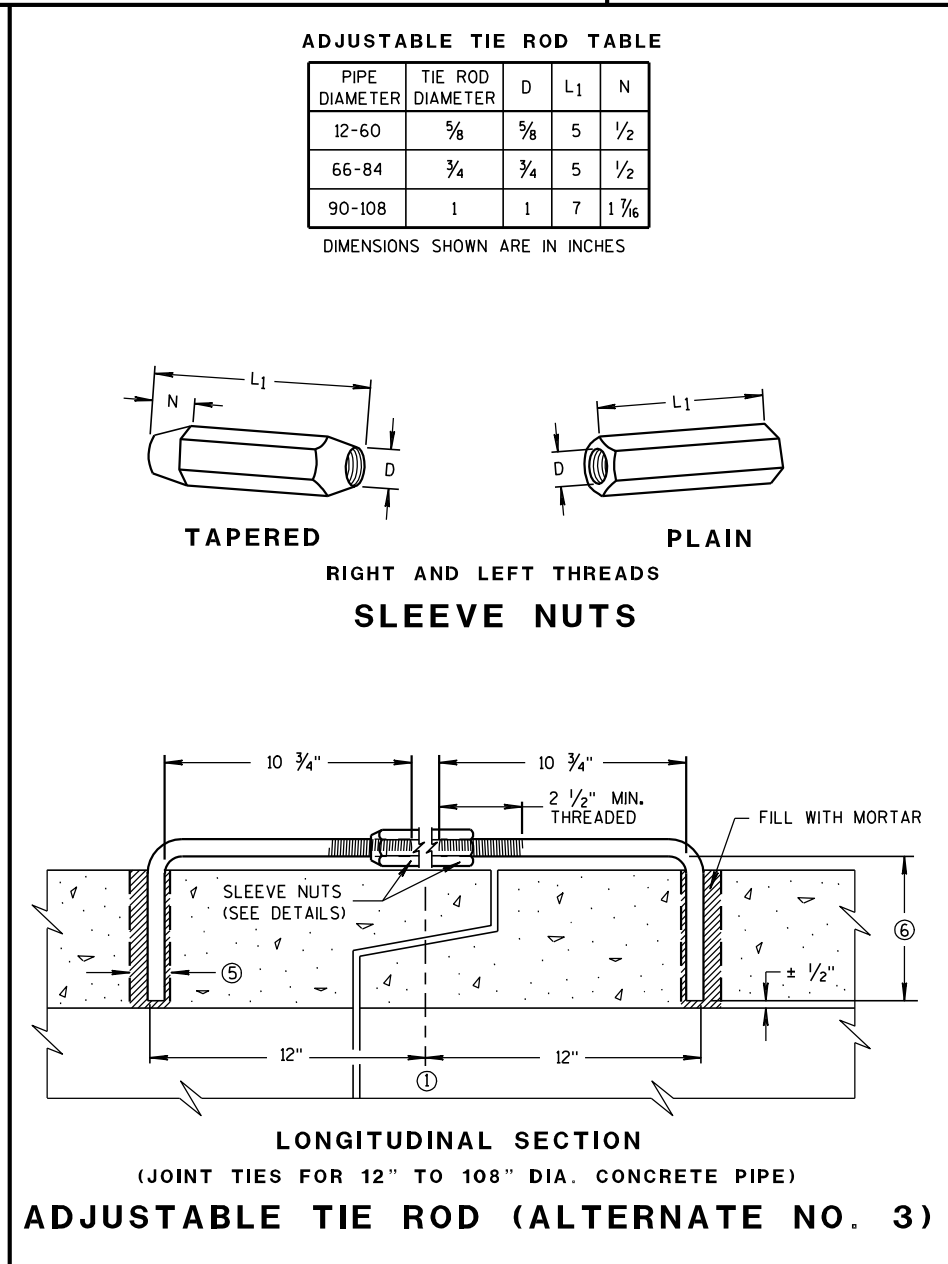
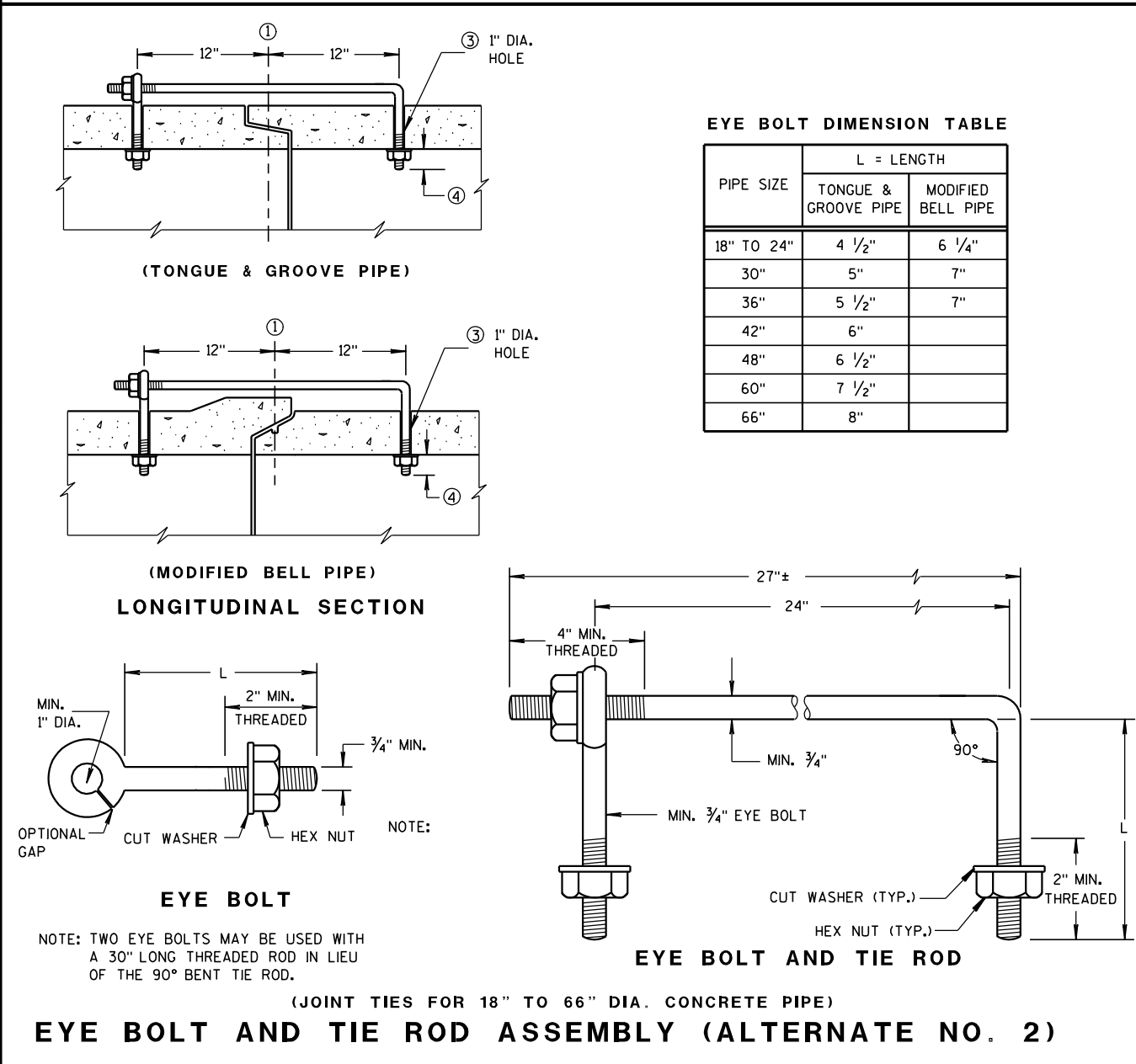
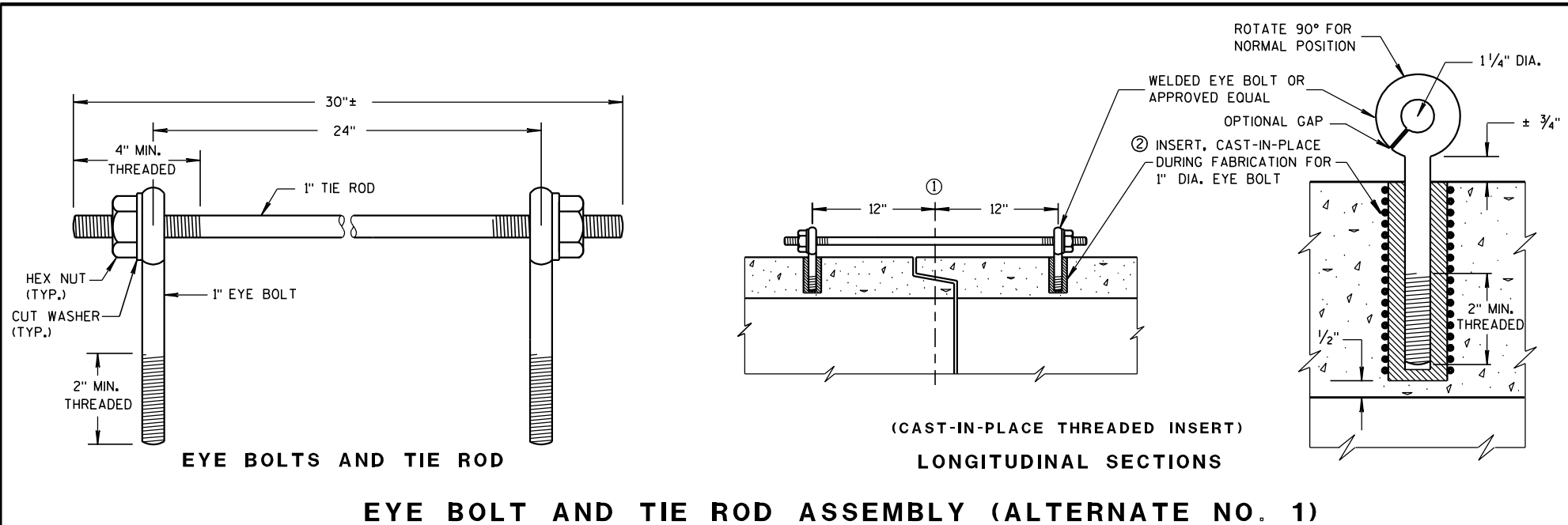


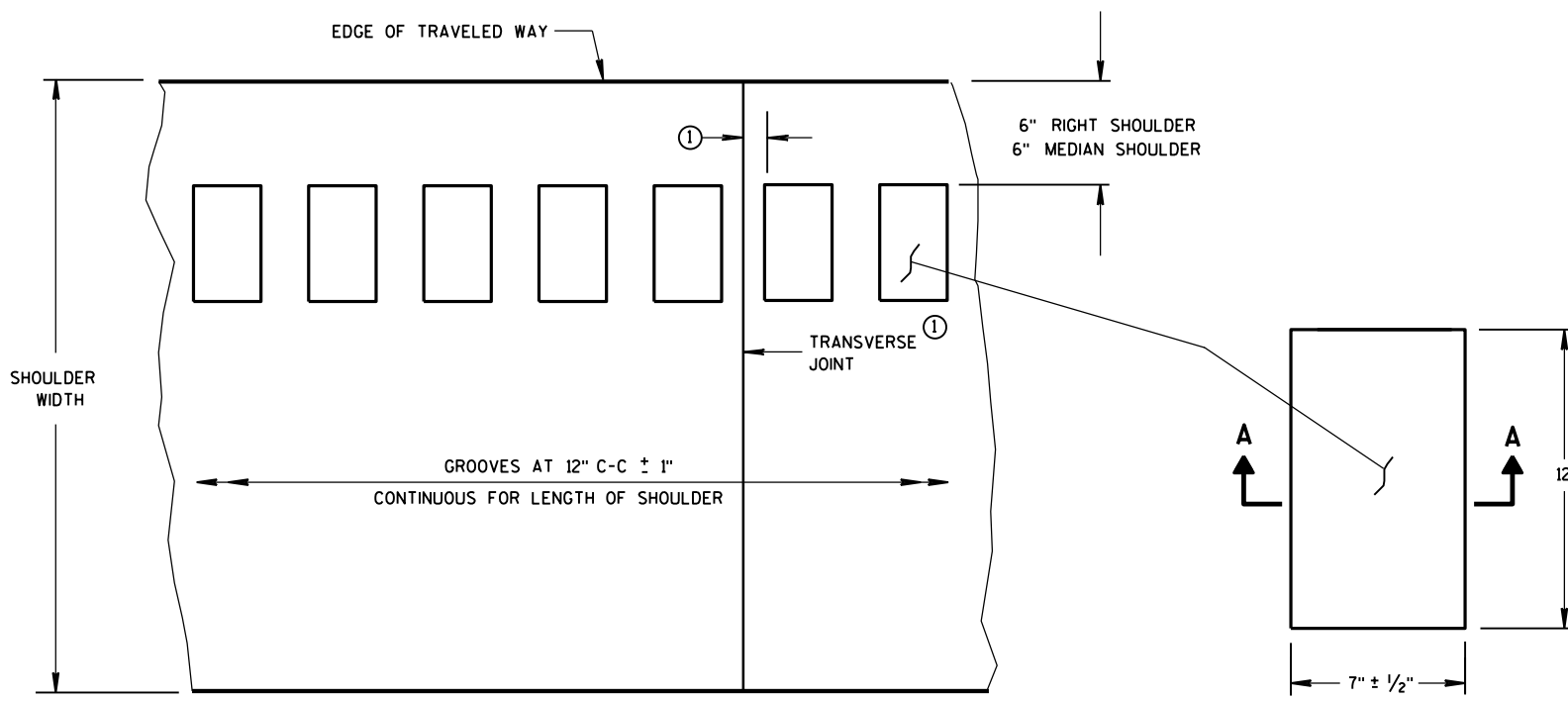
SIDE VIEW

CULVERT PIPE CHECK
(INSTALL ON INLET END ONLY)

CULVERT PIPE CHECK	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Daniel Schave EROSION CONTROL ENGINEER

FHWA





PLAN VIEW
SHOULDER WITH GROOVES

PLAN VIEW
(SINGLE GROOVE)

PLACEMENT DETAIL FOR MILLED RUMBLE STRIP

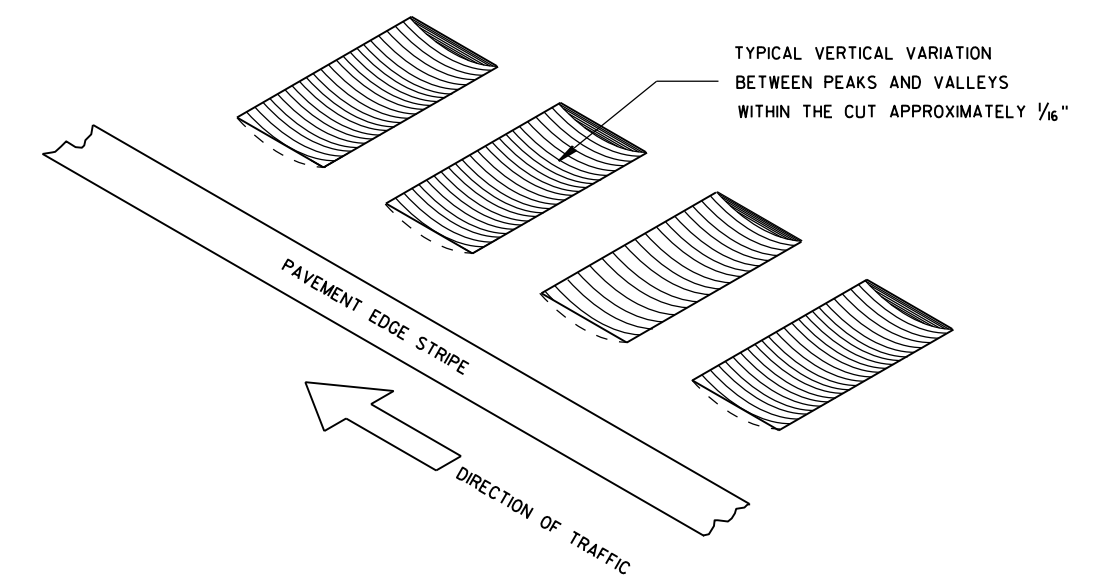
GENERAL NOTES

DETAILS OF CONSTRUCTION SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

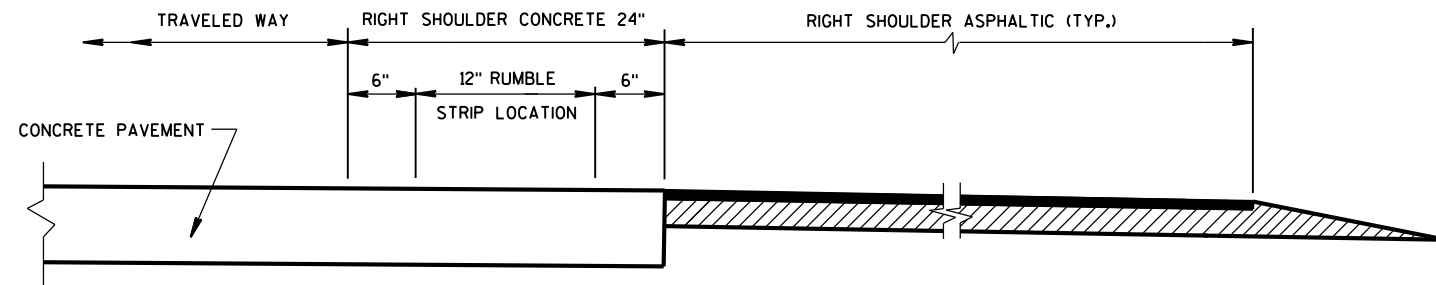
RUMBLE STRIPS ON EXPRESSWAYS

DO NOT INSTALL RUMBLE STRIPS ACROSS SIDE ROAD INTERSECTIONS, COMMERCIAL DRIVEWAYS, PRIVATE DRIVEWAYS OR ADJACENT TO RIGHT TURN LANES, LEFT TURN LANES, TURN LANE TAPERS, BRIDGE DECKS, BRIDGE APPROACHES, OR 100 FEET IN ADVANCE OF RAILROAD CROSSING. THE ATTACHED STANDARD DETAIL DRAWING SHOWS THE LOCATION OF THE RUMBLE STRIPS AT INTERCHANGE AREAS.

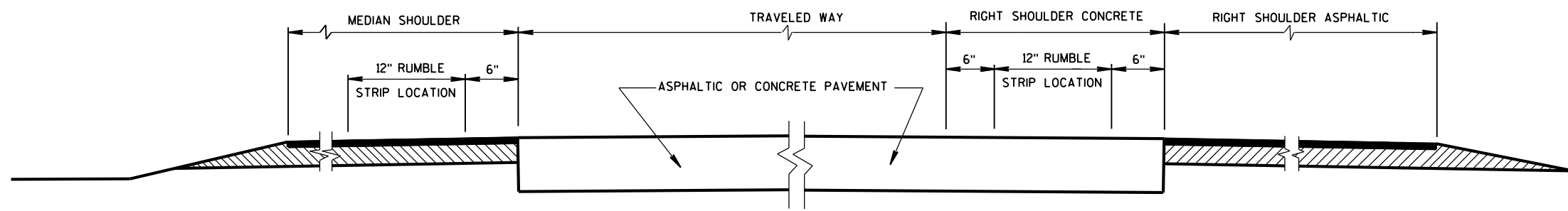
① CONCRETE PAVEMENT - RUMBLE STRIPS SHALL BE A MINIMUM OF 6" AWAY FROM TRANSVERSE JOINTS.



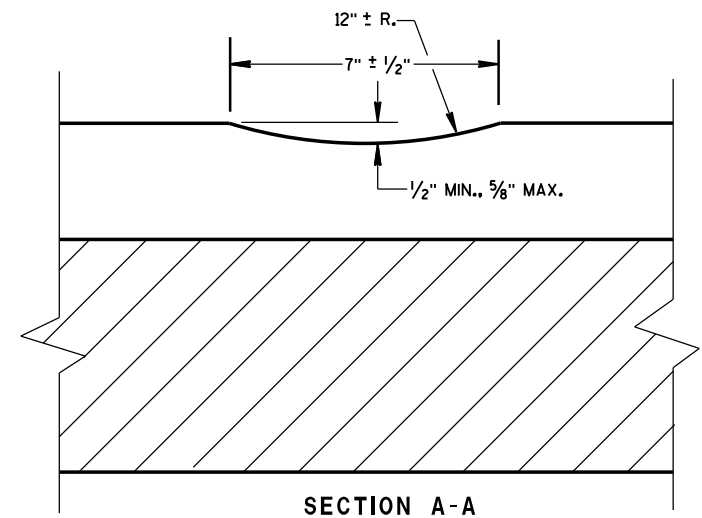
ISOMETRIC



SECTION VIEW
(CONCRETE PAVEMENT EXTENDS INTO RIGHT SHOULDER)



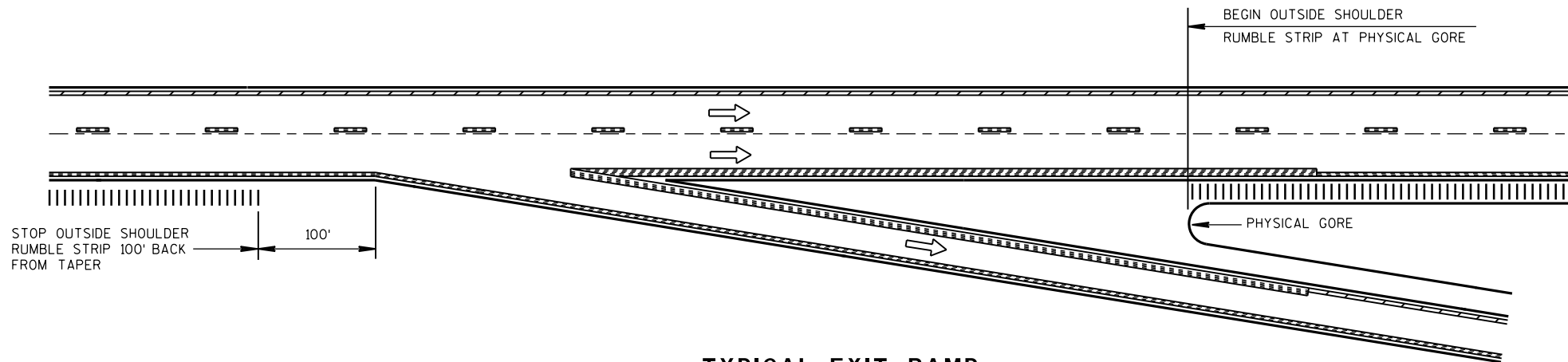
SECTION VIEW
TYPICAL LOCATIONS OF SHOULDER RUMBLE STRIPS
IN RURAL DIVIDED HIGHWAYS
(ONE ROADWAY IS SHOWN)



SECTION A-A

SHOULDER RUMBLE STRIP,
MILLING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



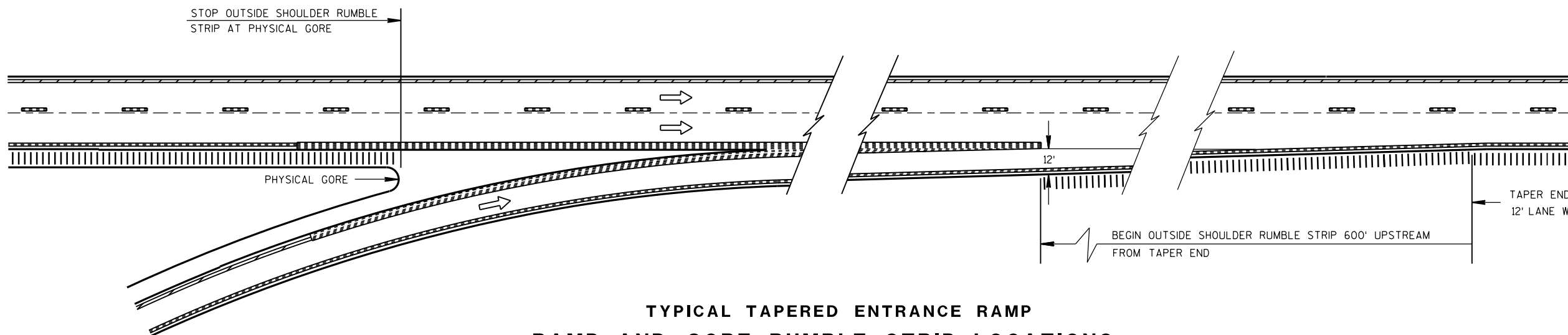
TYPICAL EXIT RAMP

NOTES:

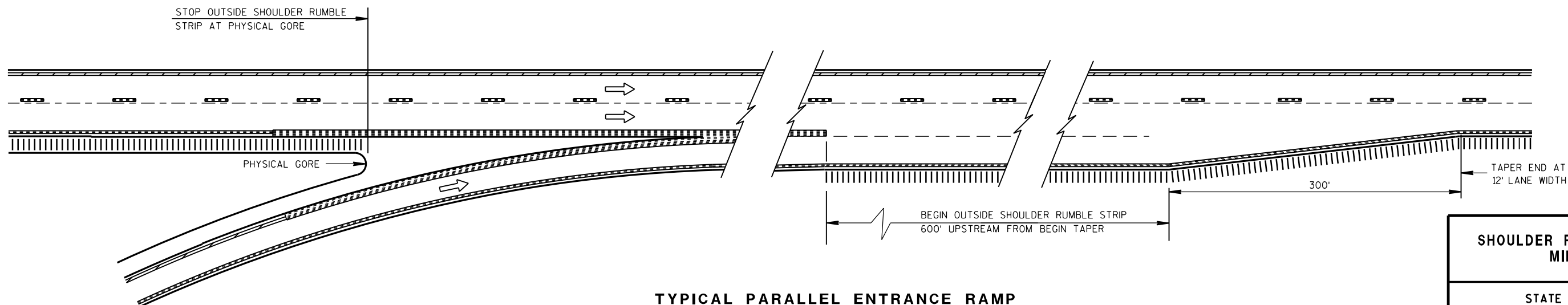
NO RUMBLE STRIP ON EXIT, DIRECTIONAL, OR ENTRANCE RAMPS, EXCEPT NEAR THE ENTRANCE TAPER END AND ALONG THE PARALLEL RAMP AREA AS SHOWN.

PAVEMENT MARKING DETAILS AND SPECIFICATIONS ARE PROVIDED ELSEWHERE IN THE CONTRACT.

NOTE:
ARROW SYMBOL (→)
SHOWS DIRECTION OF TRAVEL



**TYPICAL TAPERED ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**



**TYPICAL PARALLEL ENTRANCE RAMP
RAMP AND GORE RUMBLE STRIP LOCATIONS**

**SHOULDER RUMBLE STRIP,
MILLING**

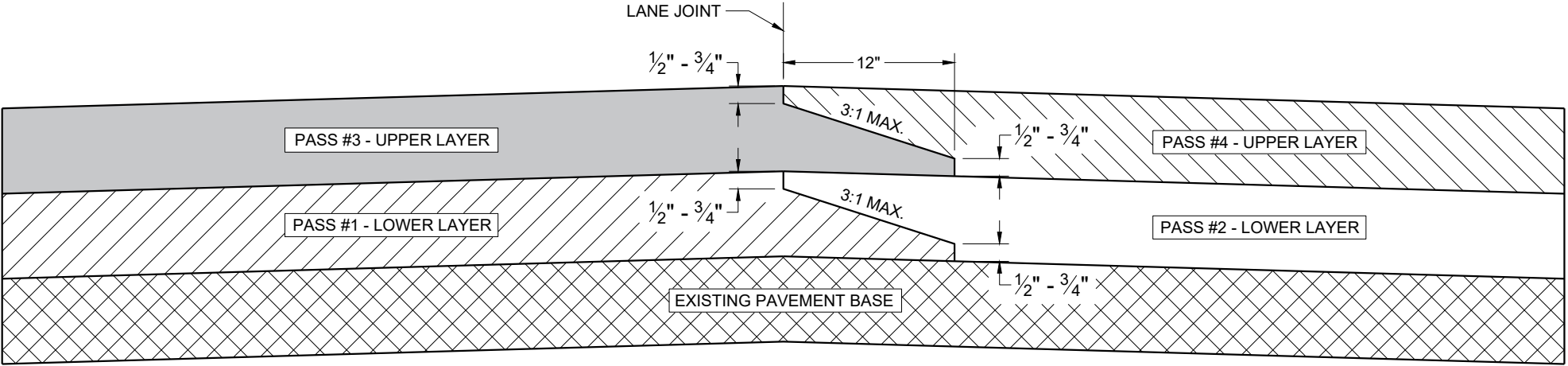
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/17/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

CONFORM TO STANDARD SPECIFICATION 450.3.2.8



TYPICAL PAVEMENT CROSS SECTION
OF NOTCHED WEDGE LONGITUDINAL JOINTS

HMA LONGITUDINAL JOINTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Steven Hefel
DATE HMA PAVEMENT ENGINEER

FHWA

6

- S.D.D. 14 B 15-11a**

S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a

S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a



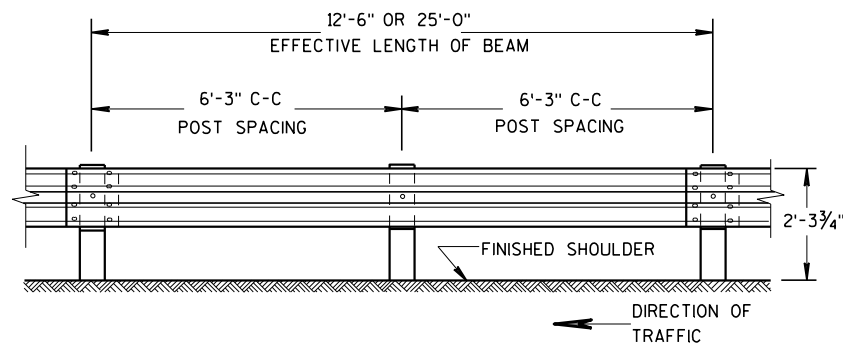
S.D.D. 14 B 15-11a



S.D.D. 14 B 15-11a

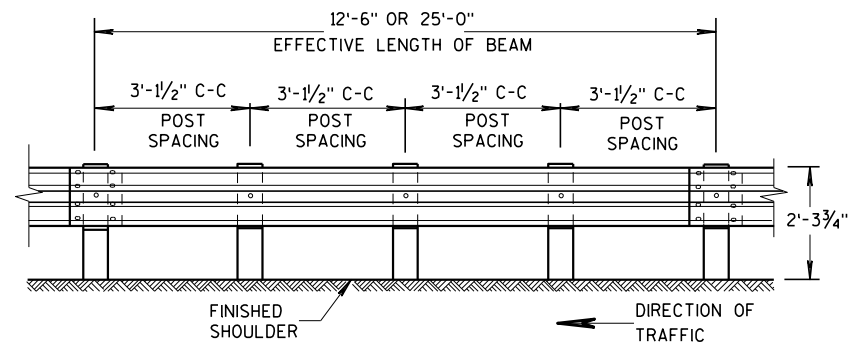
S.D.D. 14 B 15-11a

S.D.D. 14 B 15-11a



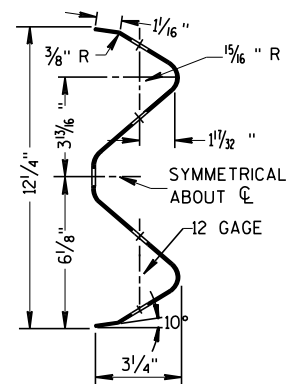
FRONT VIEW

POST SPACING STANDARD INSTALLATION

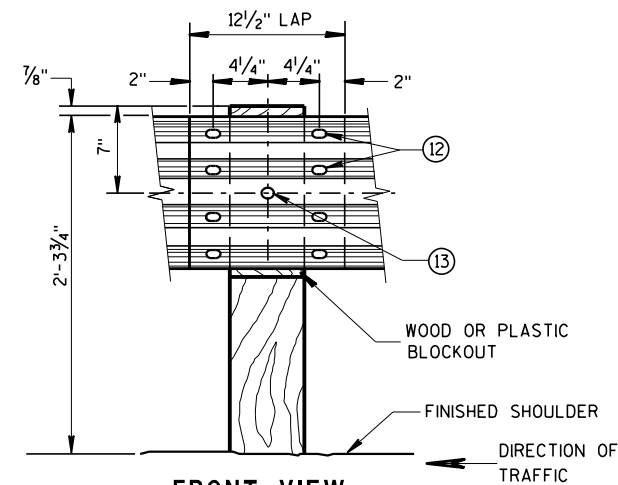


FRONT VIEW

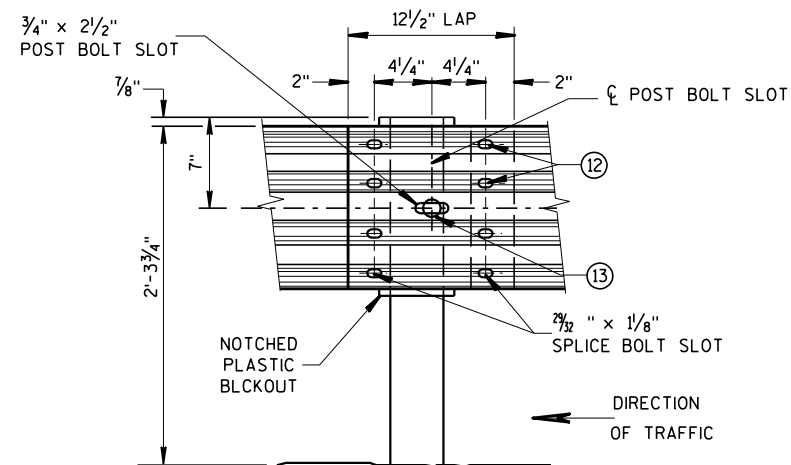
POST SPACING FOR LONGER POST
AT HALF POST SPACING W BEAM (LHW)



SECTION THRU W BEAM



FRONT VIEW
BEAM SPLICE AT WOOD POST
AND POST MOUNTING DETAIL



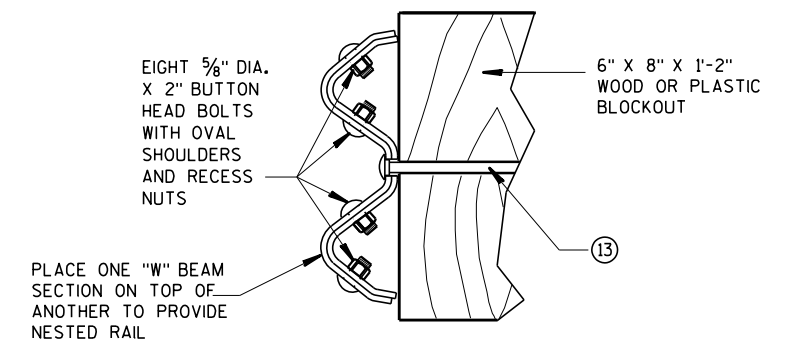
FRONT VIEW
BEAM SPLICE AT STEEL POST

**TYPICAL SPLICING DETAILS
OF STEEL PLATE BEAM GUARD**

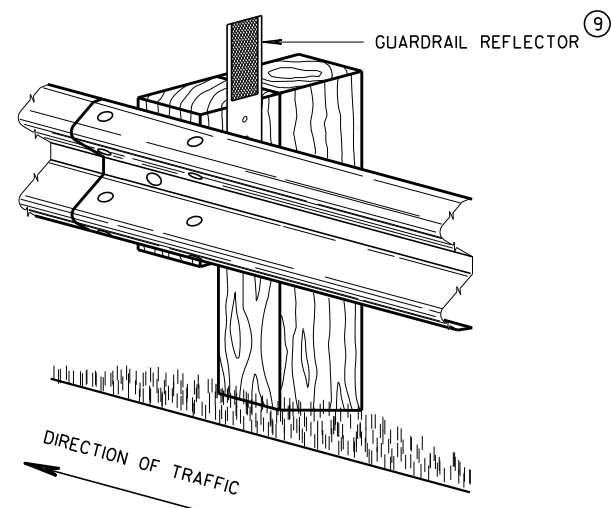
GENERAL NOTES

FURNISH GUARDRAIL DEFLECTORS FROM APPROVED PRODUCTS LIST.

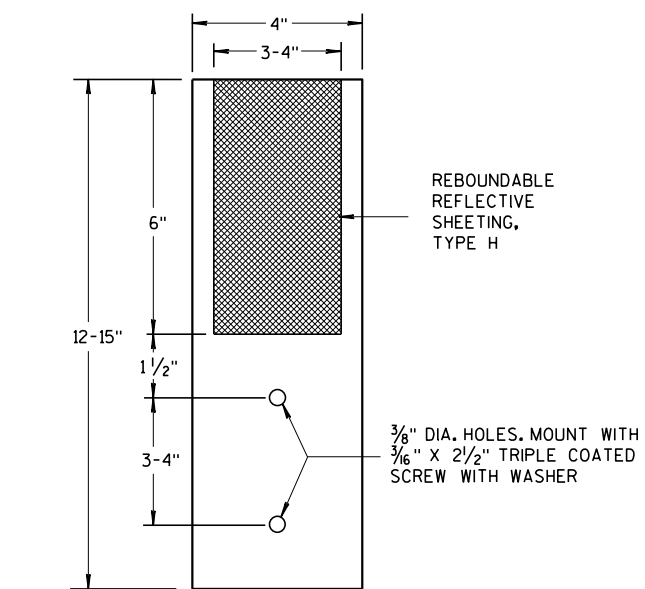
- ⑨ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINA. START REFLECTORS AT POST #9 AND SPACE EVENLY EVERY 100 FEET (MAX.) TO THE END OF GUARDRAIL RUN, USING A MINIMUM OF 3 REFLECTORS.
- ⑫ 8 - 5/8" ϕ X 2" BUTTON HEAD BOLTS WITH OVAL SHOULDERS & RECESS NUTS.
- ⑬ 5/8" DIA. BUTTON HEAD BOLT AND RECESS NUT WITH 5/8" DIA. F844 FLAT WASHER UNDER NUT.



NESTED W BEAM (NW)
USE ALL OTHER STANDARD BEAM GUARD DETAILS FOR
CONSTRUCTING NESTED W BEAM (NW)



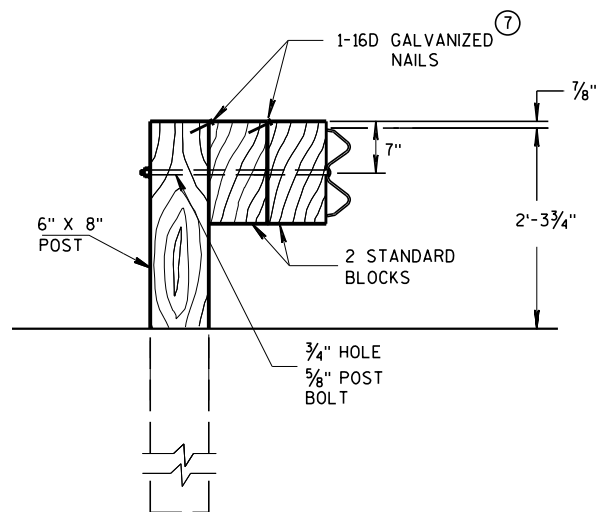
4" X 12" GUARDRAIL REFLECTOR DETAIL AND TYPICAL INSTALLATION *



4" x 12" GUARDRAIL REFLECTOR

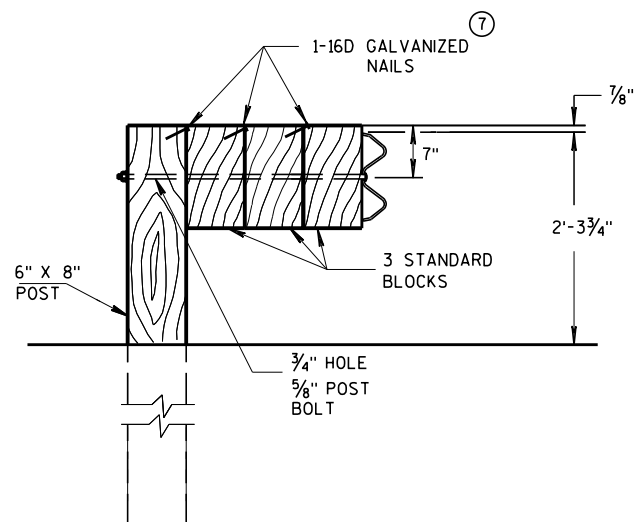
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



DETAIL FOR DOUBLE BLOCKS

THE NUMBER OF DOUBLE BLOCK POSTS
WITHIN A BARRIER RUN IS UNLIMITED

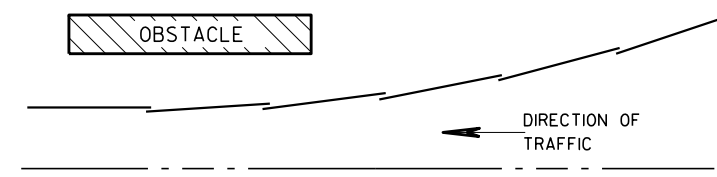


DETAIL FOR TRIPLE BLOCKS

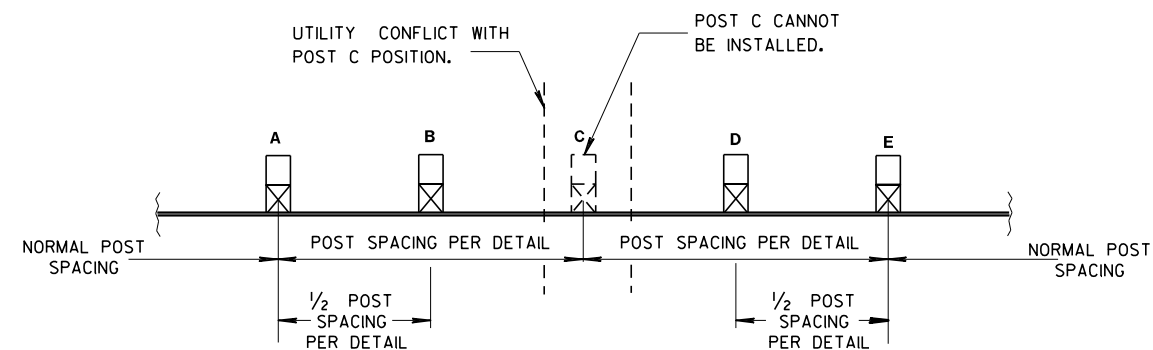
TRIPLE BLOCK DETAIL IS LIMITED TO ONE
LOCATION WITHIN A BEAM GUARD RUN.

NOTES: USE DOUBLE OR TRIPLE BLOCKS WHEN UNDERGROUND OBSTACLES
PREVENT THE POST FROM BEING INSTALLED.

DO NOT USE EXTRA BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND
SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION
DISTANCE OF THE BARRIER.



PLAN VIEW BEAM LAPPING DETAIL

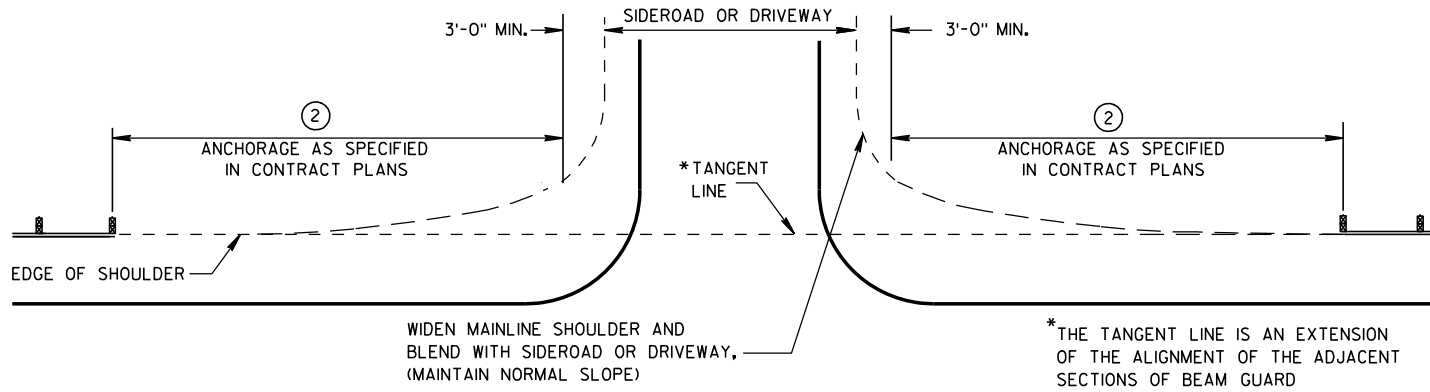


POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION

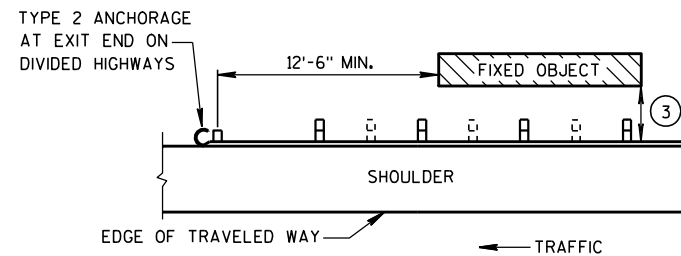
STEEL PLATE BEAM GUARD, CLASS "A", INSTALLATION & ELEMENTS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

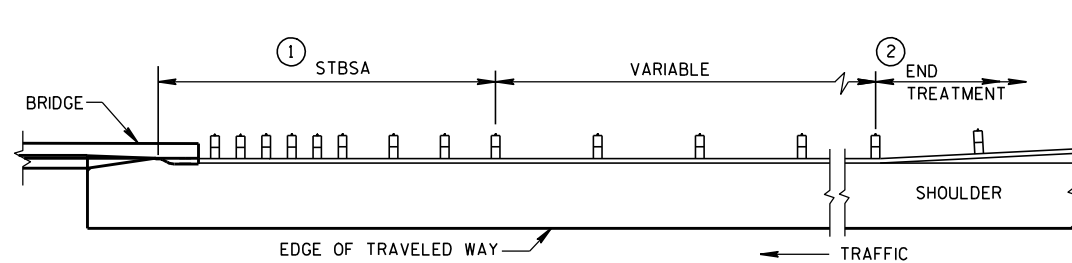
APPROVED	/S/ Rodney Taylor
June 2017	ROADWAY STANDARDS DEVELOPMENT
DATE	UNIT SUPERVISOR
FHWA	



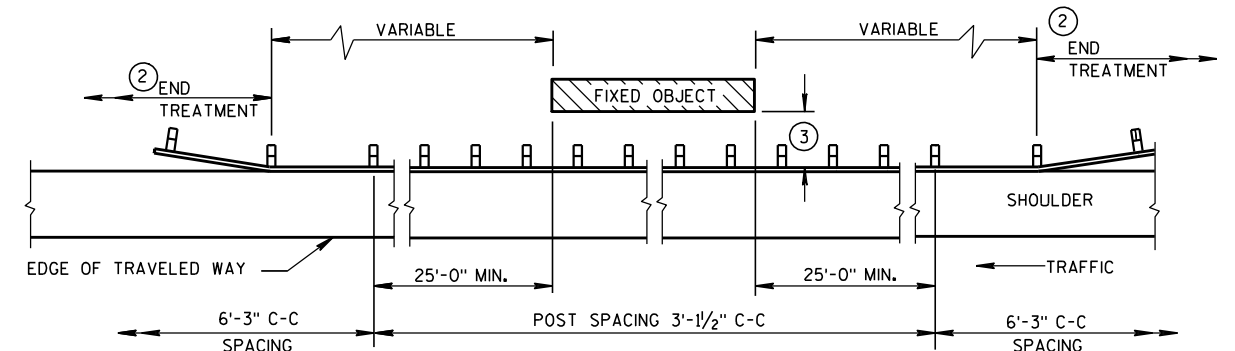
BEAM GUARD AT SIDEROADS OR DRIVEWAYS



BEAM GUARD AT OBSTACLES EXIT END - ONE WAY TRAFFIC



BEAM GUARD AT FULL WIDTH BRIDGES

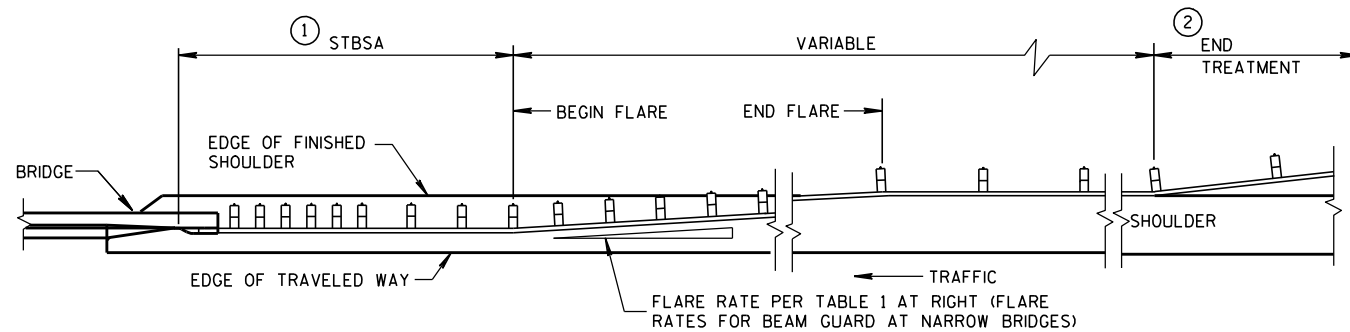


BEAM GUARD AT OBSTACLES - TWO WAY TRAFFIC

(RAIL TO OBSTACLE CLEARANCE 3'-6" TO 4'-6")

TABLE 1
FLARE RATES FOR BEAM
GUARD AT NARROW BRIDGES

POSTED SPEED (MPH)	FLARE RATE
25	13:1
30	15:1
35	16:1
40	18:1
45	21:1
50	24:1
55	26:1
65	30:1



BEAM GUARD AT NARROW BRIDGES (FLARED TO SHOULDER EDGE, THEN PARALLEL TO ROADWAY)

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE PERTINENT STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

W6 X 9 OR W6 X 8.5 STEEL POSTS WITH NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POSTS WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

THE LOCATIONS AND LENGTHS OF BEAM GUARD ARE SHOWN ELSEWHERE IN THE PLAN.

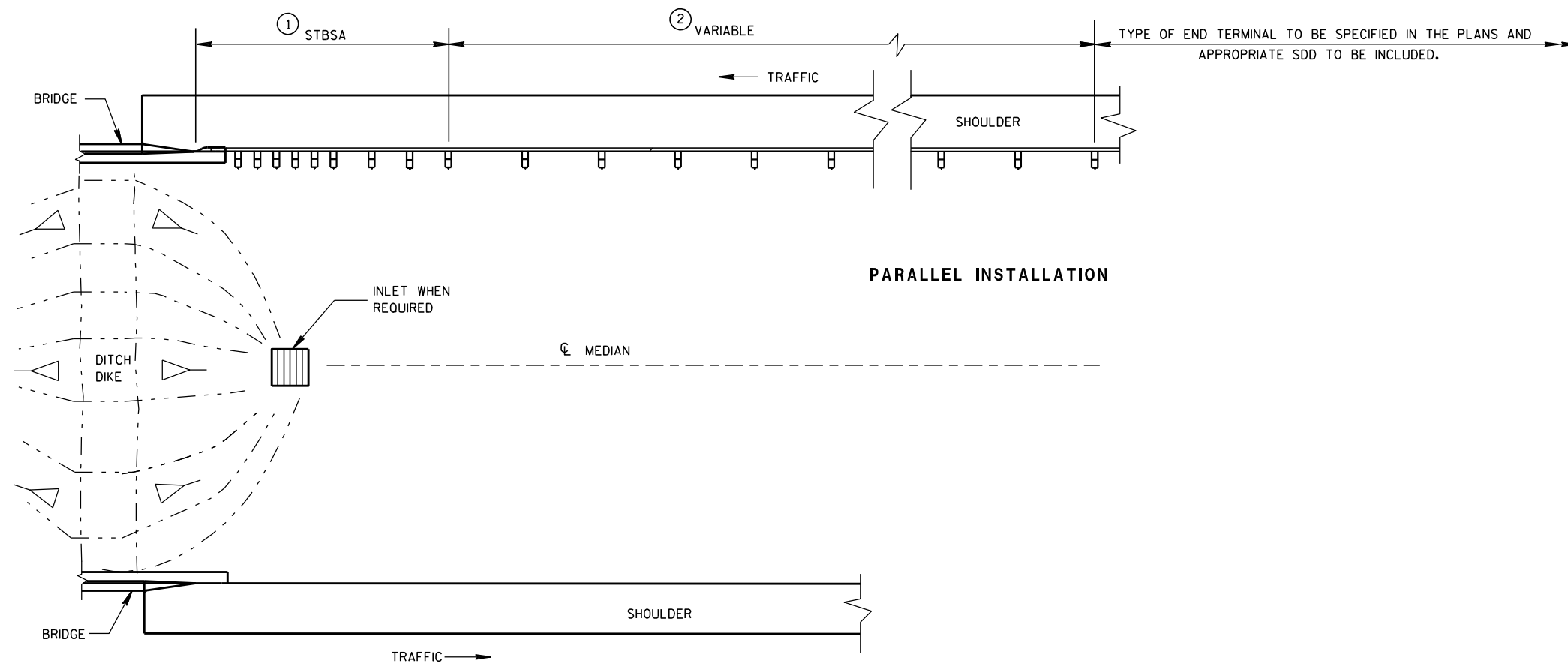
- STEEL THRIE BEAM STRUCTURAL APPROACH (STBSA) - SEE CURRENT SDD 14B20.
- USE AN APPROVED END TREATMENT FOR THE TRAFFIC APPROACH SIDE OF BRIDGE/OBSTACLES. USE TYPE 2 ANCHORAGE ONLY AT THE DOWNSTREAM ENDS OF BEAM GUARD LOCATED ALONG ROADWAYS WITH ONE WAY TRAFFIC.

MINIMUM LATERAL DISTANCE FROM FACE OF BEAM GUARD TO FIXED OBJECT	POST SPACING
3'-6"	3' - 1 1/2"
4'-6"	6' - 3"

STEEL PLATE BEAM GUARD
CLASS "A"
AT BRIDGES, OBSTACLES
AND SIDEROADS/DRIVEWAYS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-21-07
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



BEAM GUARD AT MEDIAN APPROACH TO BRIDGES

STEEL PLATE BEAM GUARD
CLASS "A" AT
MEDIAN APPROACH TO BRIDGES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8-21-07
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

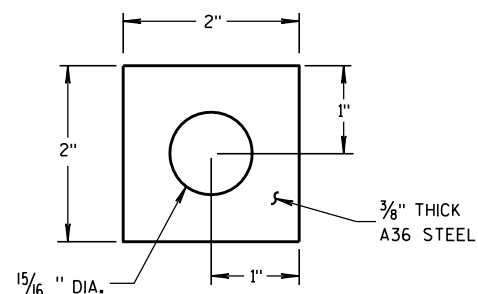
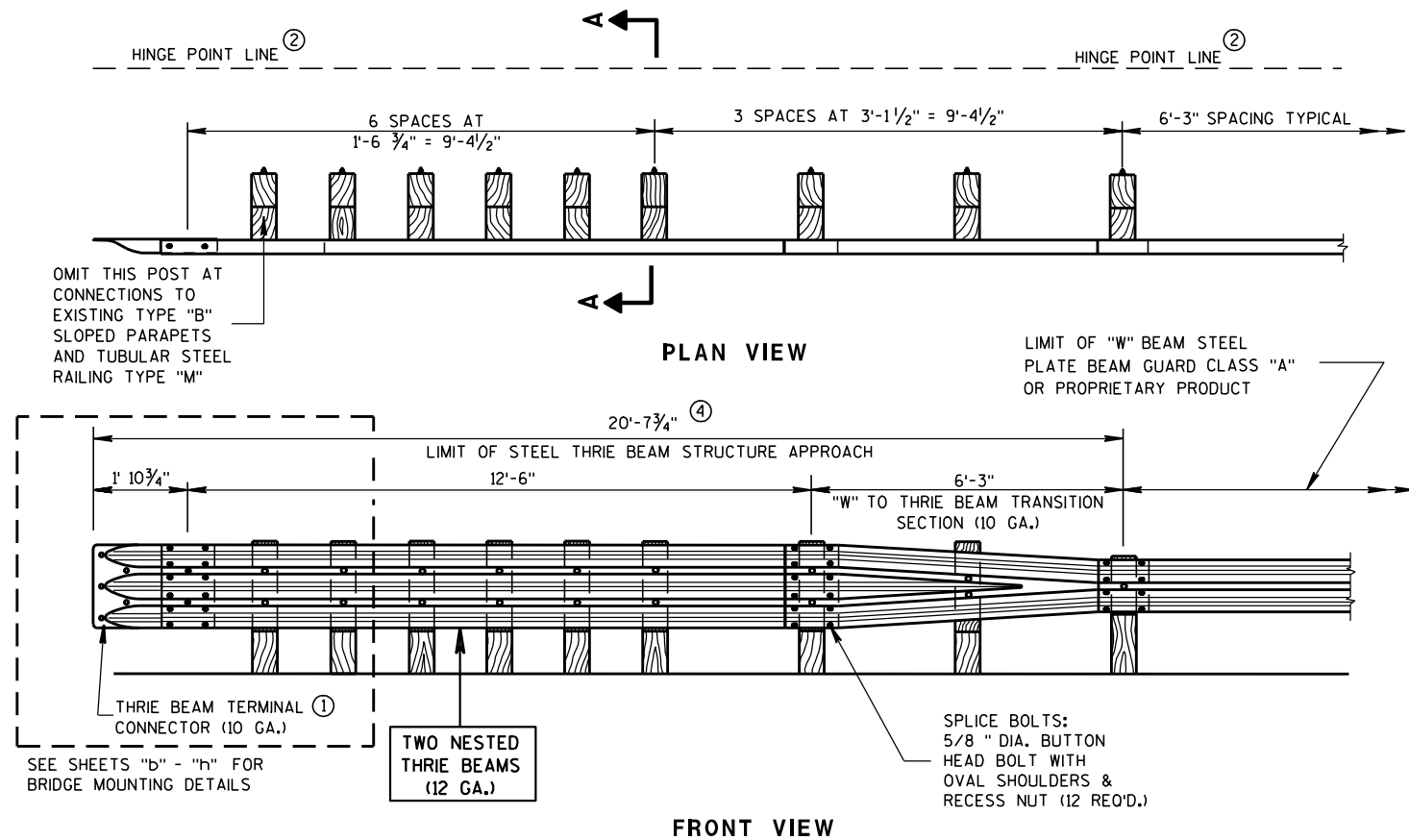


PLATE WASHER DETAIL

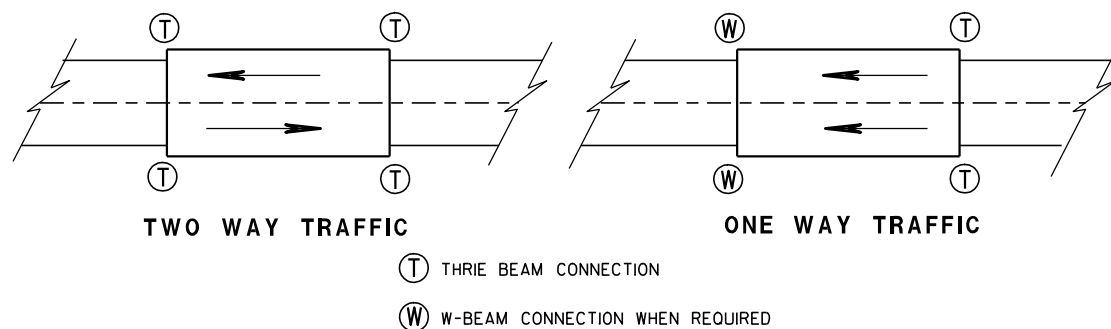
GENERAL NOTES

BOLT THE THRIE BEAM TO ALL POSTS AND BLOCKOUTS. DRILL OR PUNCH BOLT HOLES IN THE BEAM IF THE POST SPACING IS LESS THAN 6'-3".

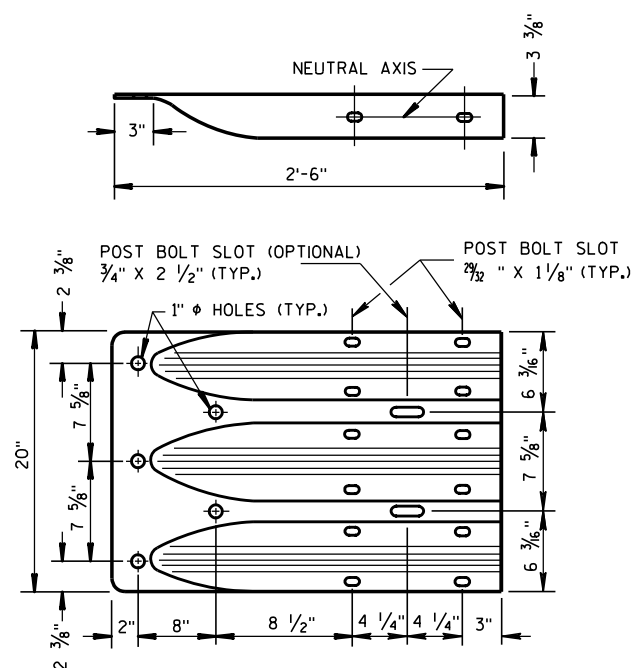
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.

IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B15 FOR MORE DETAILS.

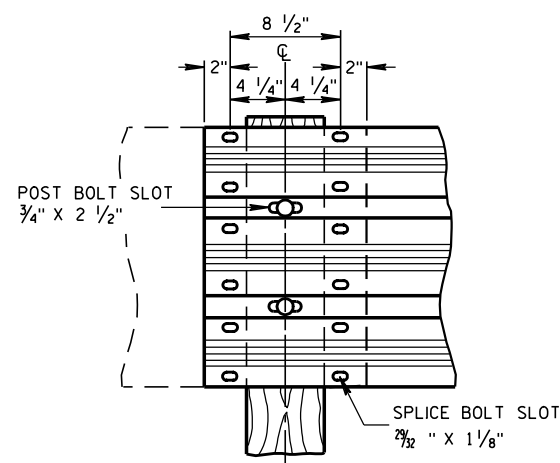
- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② MINIMUM EMBEDMENT SHALL BE 4'-0". WHERE EXISTING CONDITIONS DO NOT PERMIT THE APPROPRIATE EARTHWORK SHOWN ON THE PLAN TYPICAL SECTIONS OR DETAILS, THE ENGINEER MAY ALLOW THE REDUCTION OR ELIMINATION OF THE 2 FOOT DISTANCE TO THE HINGE POINT. OTHERWISE BUILD AS THE PLAN SHOWS OR AS THE ENGINEER DIRECTS. IF THE 2 FOOT DISTANCE TO THE HINGE POINT IS REDUCED OR ELIMINATED, INCREASE THE POST EMBEDMENT DEPTH TO 4'-6" OR MORE.
- ③ POST BOLTS ARE 5/8" DIAMETER ASTM A307 BUTTON HEAD BOLT. A POST BOLT REQUIRES A 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX AND A 5/8" DIAMETER F844 FLAT WASHER. LENGTH OF POST BOLT MAY VARY.
- ④ ALL WOOD POSTS MUST BE 6" X 8" AND AT LEAST 7'-0" LONG.



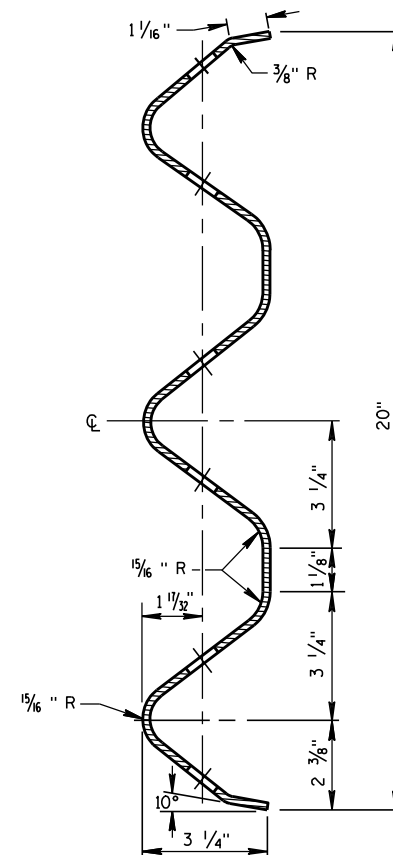
TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE



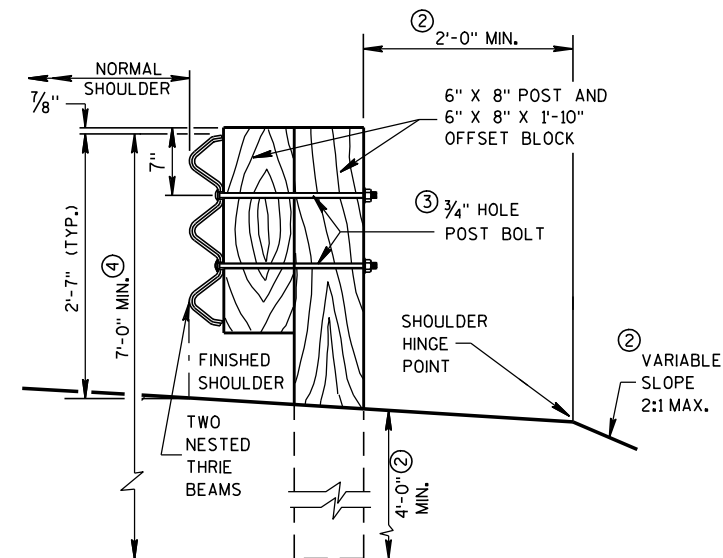
THRIE BEAM TERMINAL CONNECTOR



THRIE BEAM SPLICE



SECTION THRU THRIE BEAM RAIL ELEMENT



SECTION A-A

STEEL THRIE BEAM STRUCTURE APPROACH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

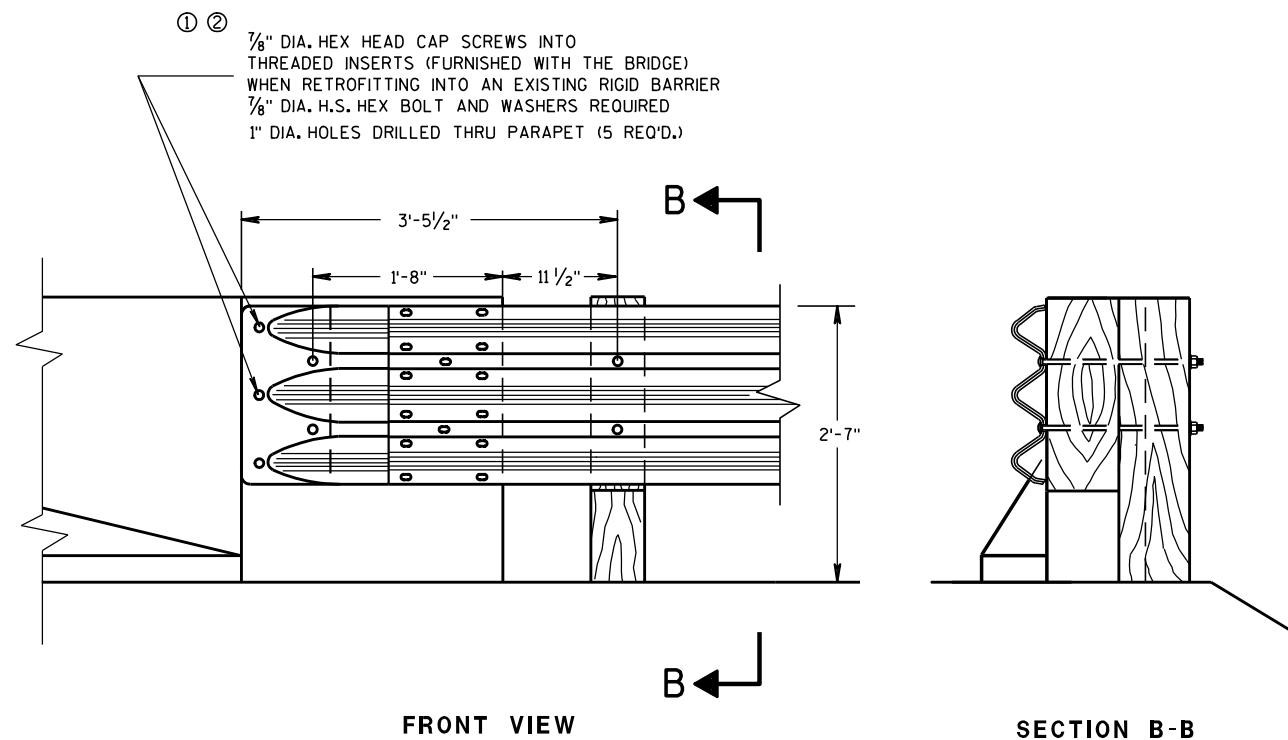
DATE

FHWA

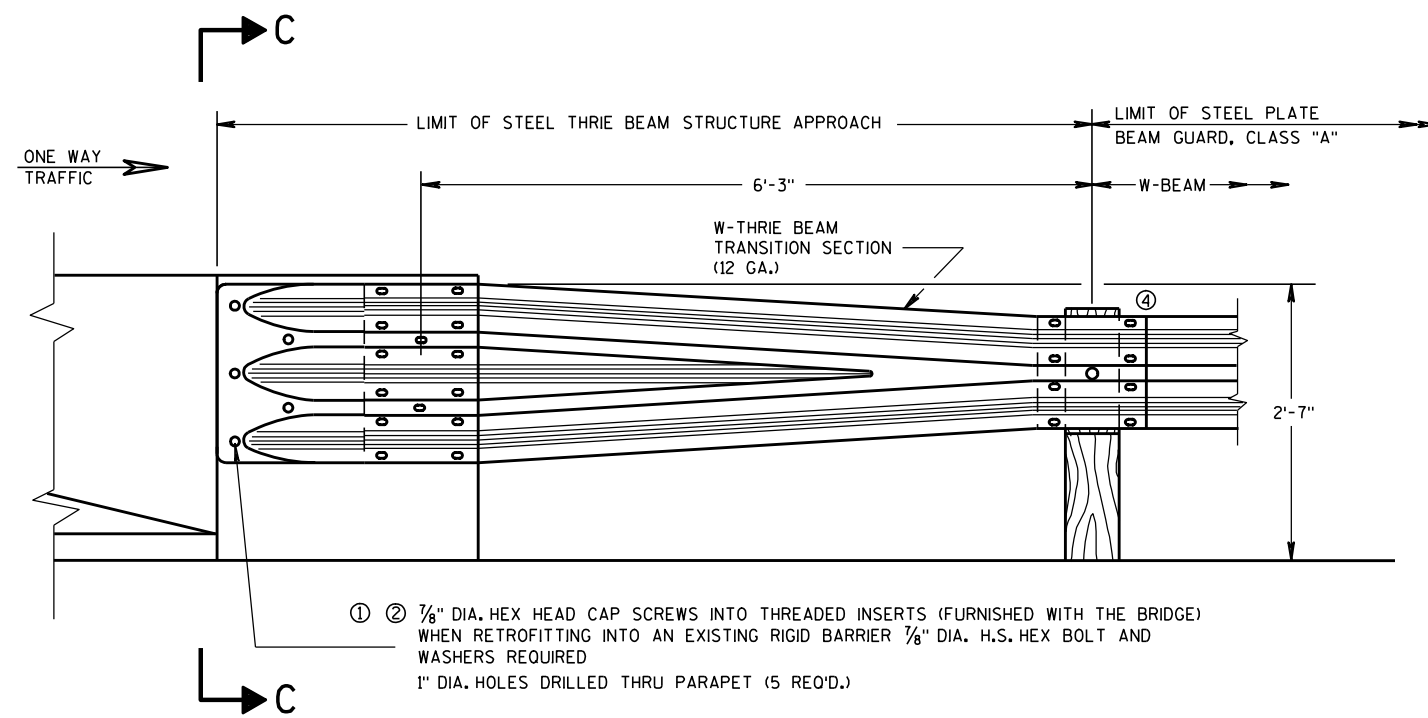
/s/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER



**THRIE BEAM CONNECTION TO BRIDGE
PARAPET WITH SQUARE ENDS**



**W BEAM TRANSITION AND CONNECTION TO
BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

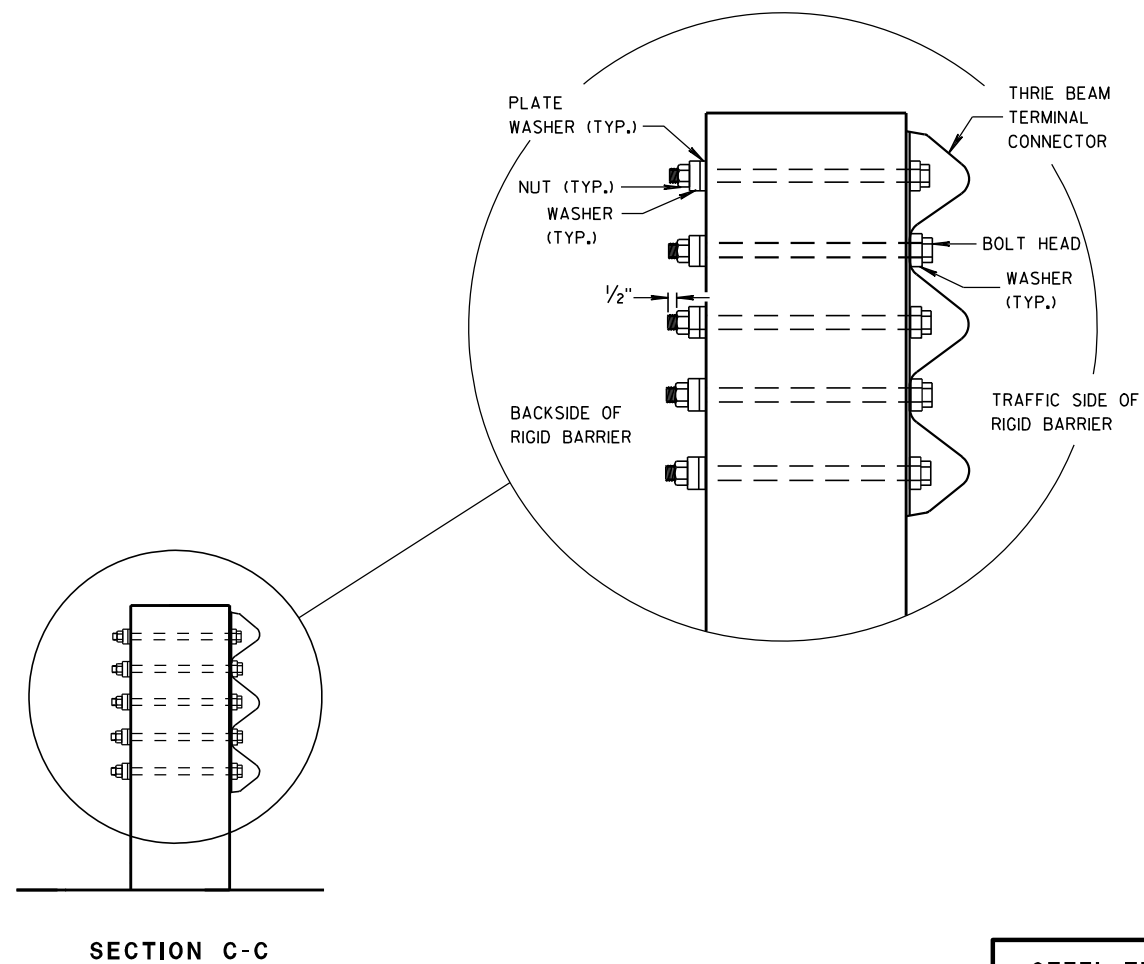
GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X $\frac{5}{8}$ " THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 $\frac{1}{2}$ ".
- ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.

DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



STEEL THRIE BEAM STRUCTURE APPROACH, CONNECTION TO SQUARE END PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012
DATE

FHWA

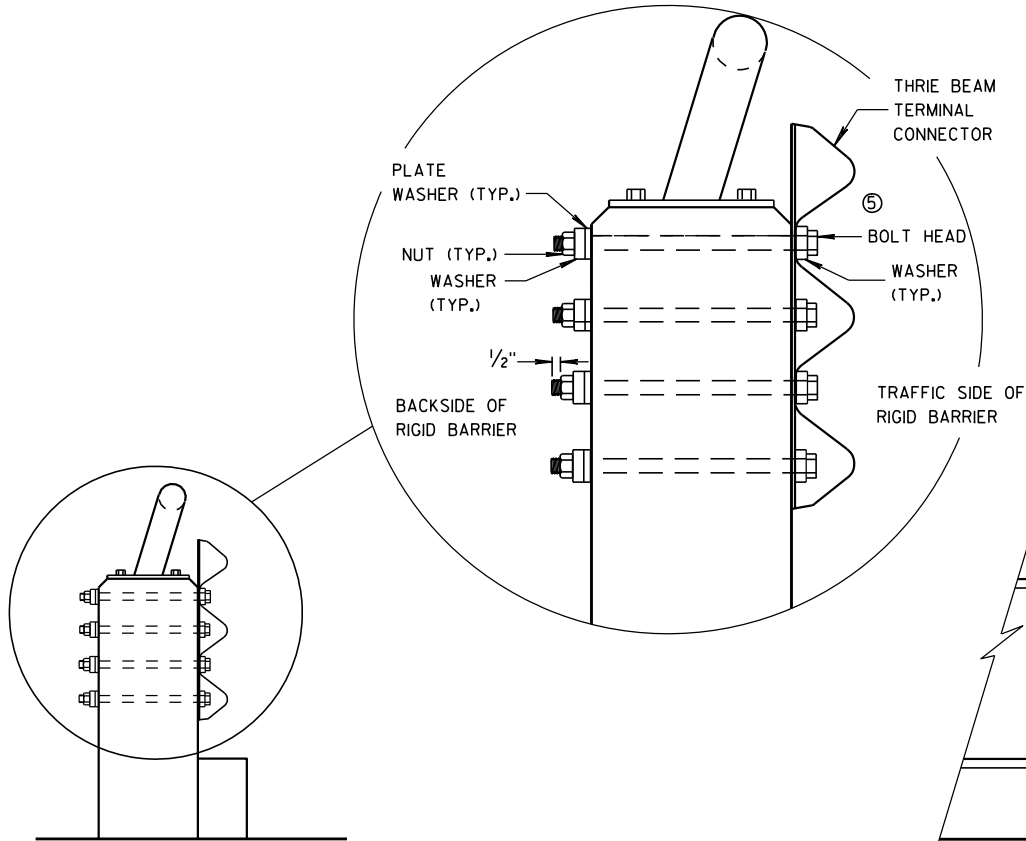
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSTION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

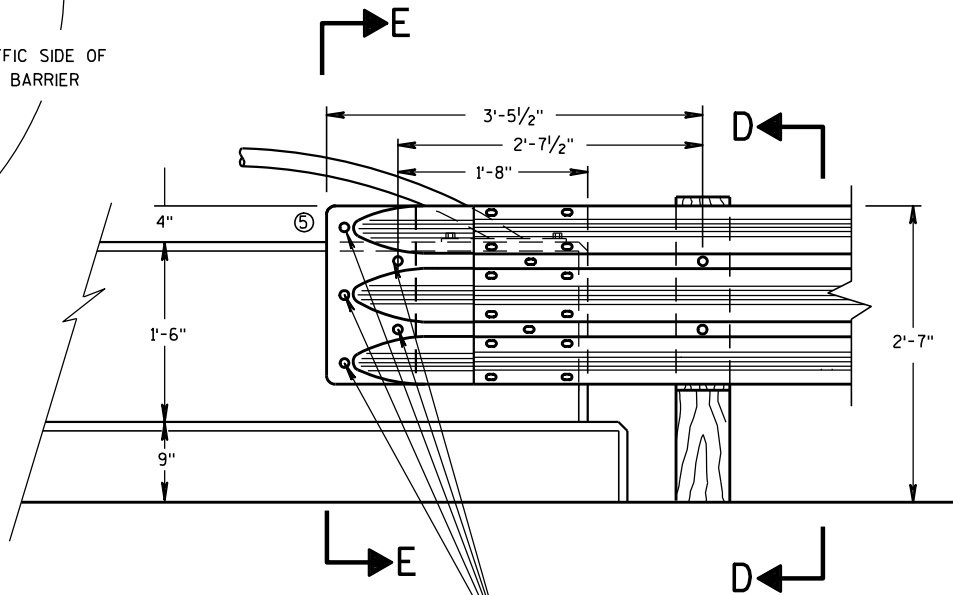
- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
 - ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
 - ③ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
 - ④ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
 - ⑤ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.
- DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



SECTION E-E

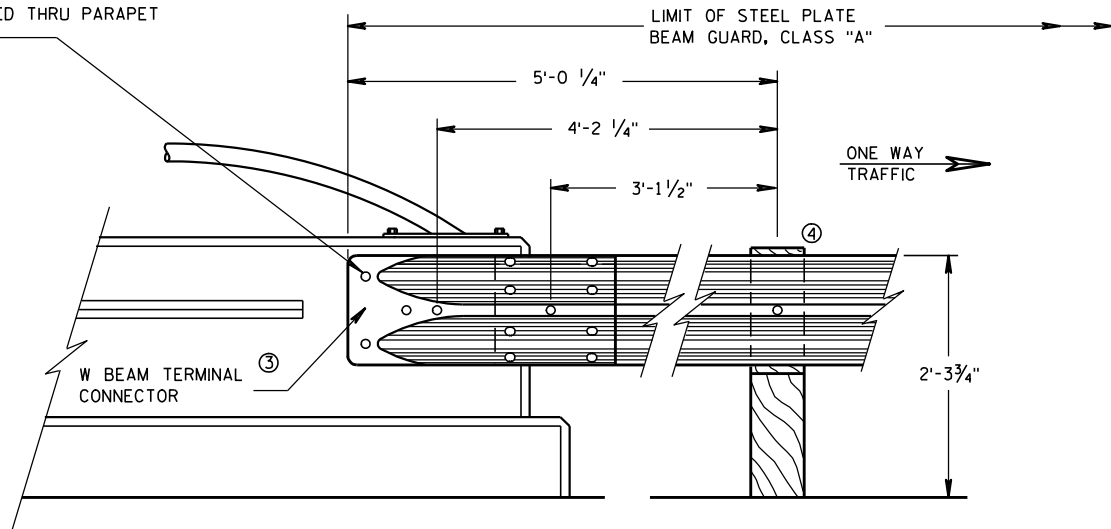
- ① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)

THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS



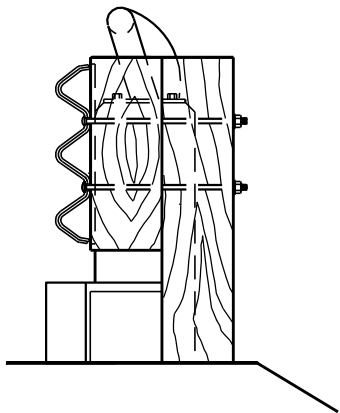
FRONT VIEW

- ① ② 7/8" DIA. HEX HEAD CAP SCREWS INTO THREADED INSERTS (FURNISHED WITH THE BRIDGE) WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER 7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED 1" DIA. HOLES DRILLED THRU PARAPET (4 REQ'D.)



FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

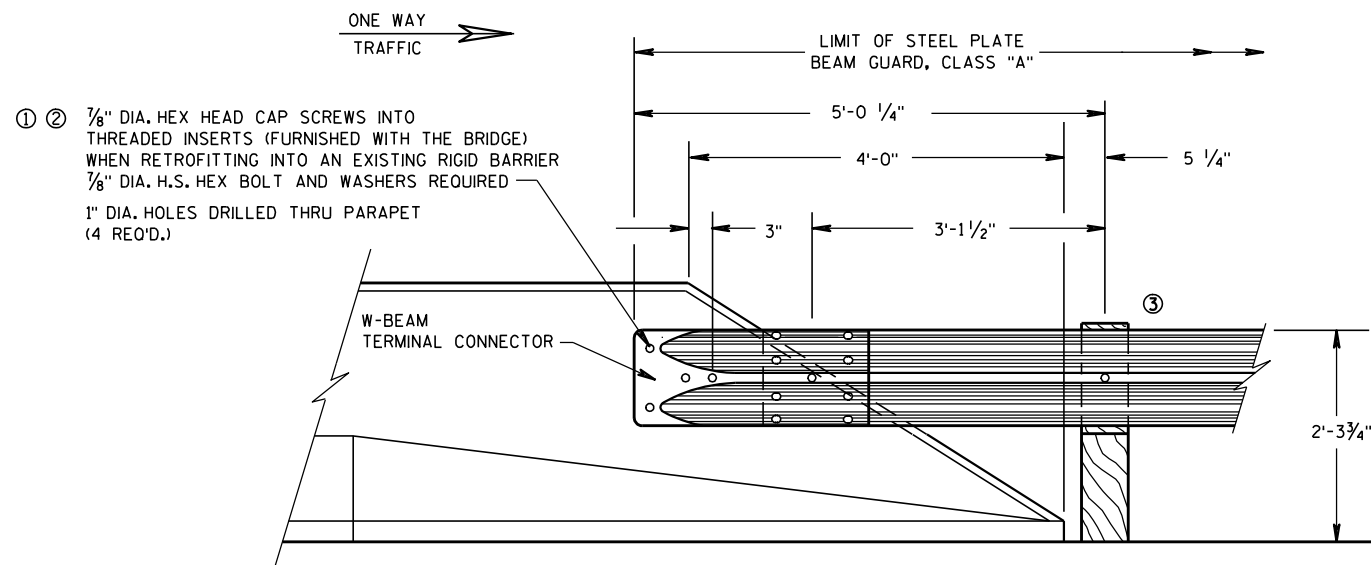


SECTION D-D

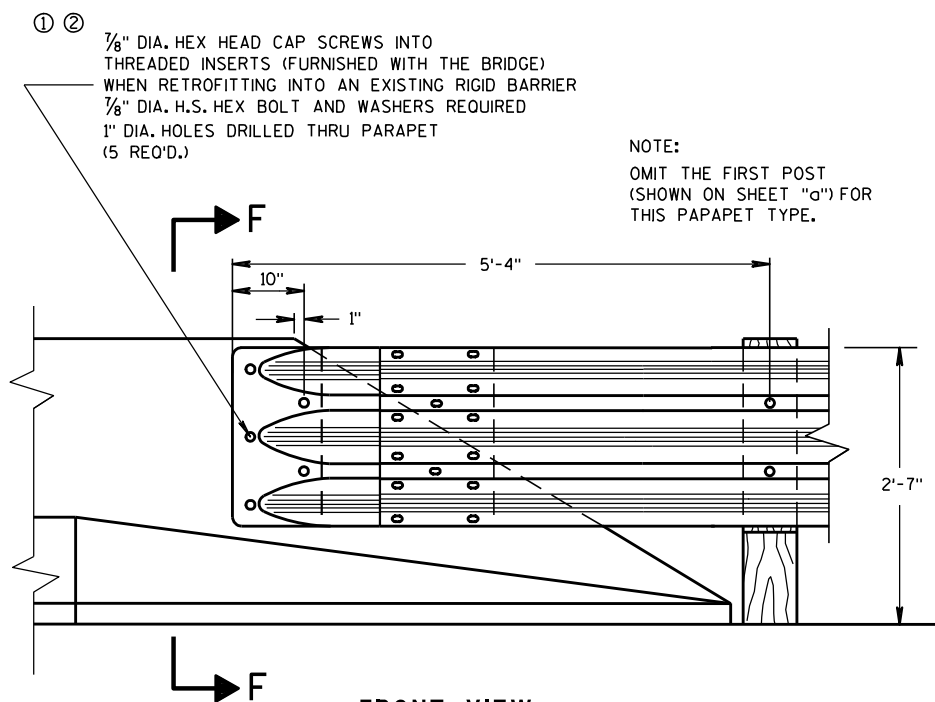
STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO
VERTICAL FACED PARAPETS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

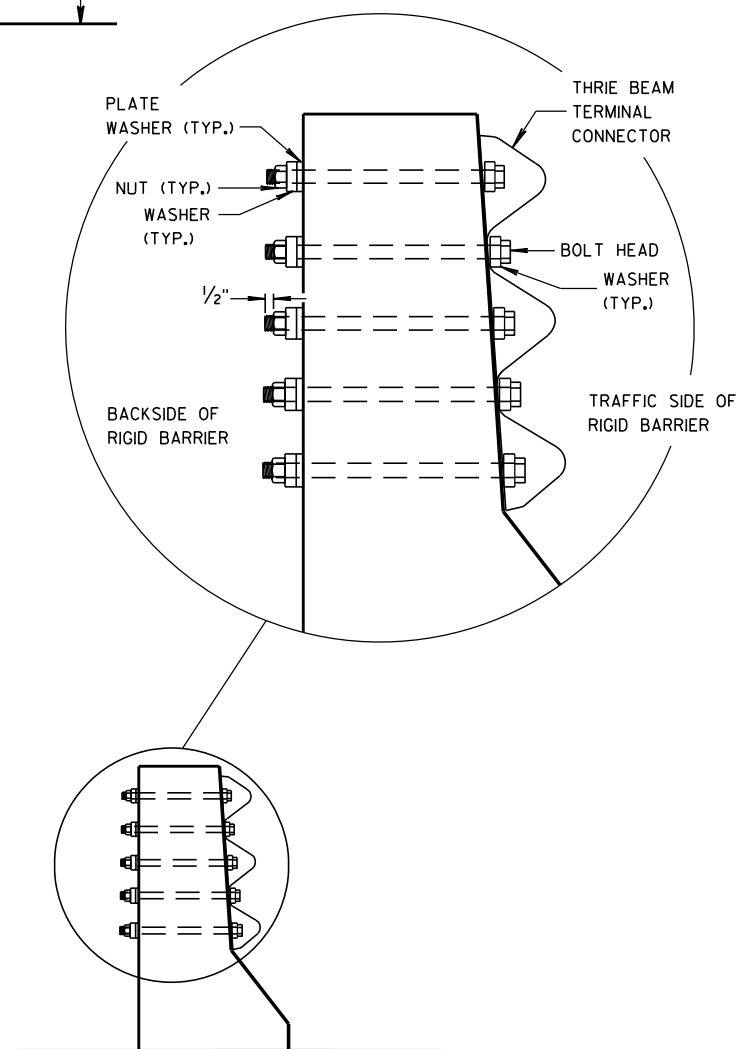
APPROVED
8/31/2012 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



FRONT VIEW
W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)



FRONT VIEW
THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS



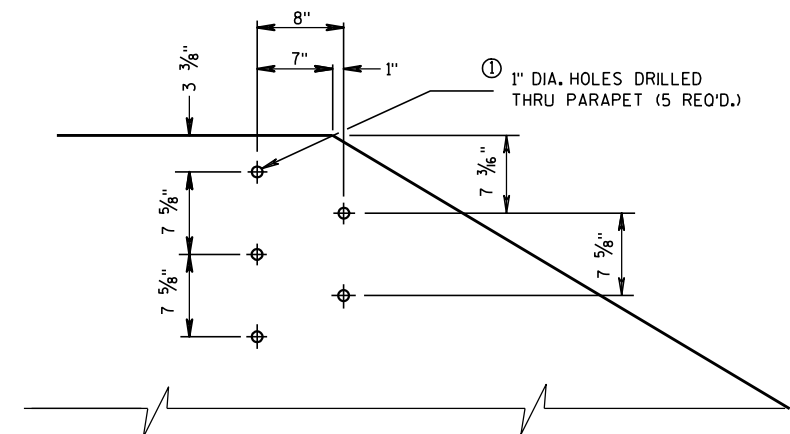
SECTION F-F

GENERAL NOTES

THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

BOLTS, NUTS AND WASHERS SHALL CONFORM TO ASTM A325, A449 AND GALVANIZED PER STANDARD SPECIFICATIONS 614.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- ③ W6 X 9 OR W6 X 8.5 STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS ARE ACCEPTABLE ALTERNATIVES FOR 6" X 8" WOOD POST WITH WOOD OR PLASTIC BLOCKOUTS. USE APPROVED NOTCHED PLASTIC BLOCKOUTS WITH STEEL POSTS.
DO NOT USE STEEL POSTS AND NOTCHED PLASTIC BLOCKOUTS IN THE STEEL THRIE BEAM STRUCTURAL APPROACH AND THE TRANSITION SECTION OF STEEL PLATE BEAM GUARD, CLASS "A" INSTALLATIONS.



DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION

STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
SLOPED END PARAPETS

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

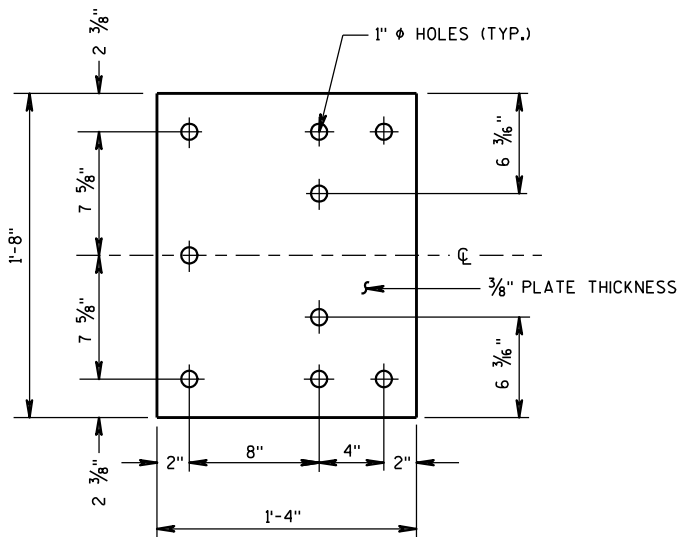
APPROVED

8/31/2012

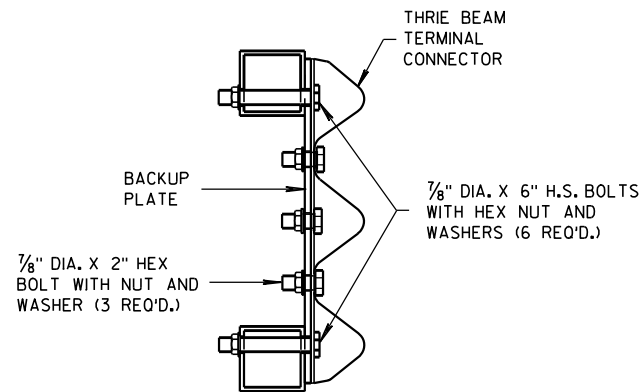
DATE

FHWA

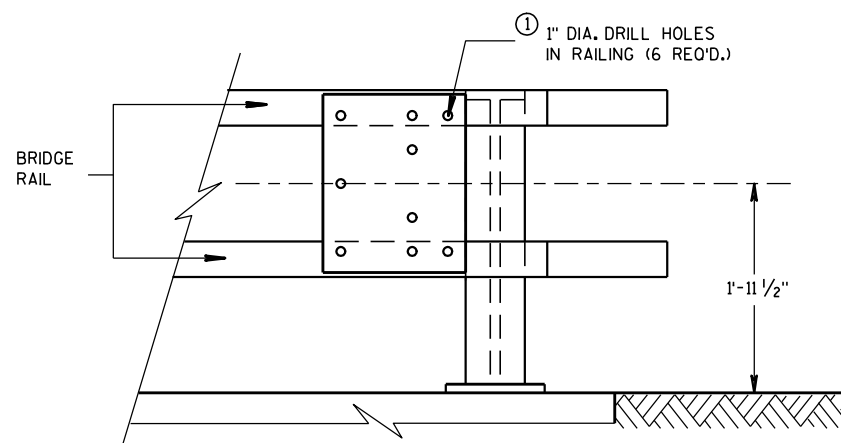
/S/ Jerry H. Zogg
 ROADWAY STANDARDS DEVELOPMENT
 ENGINEER



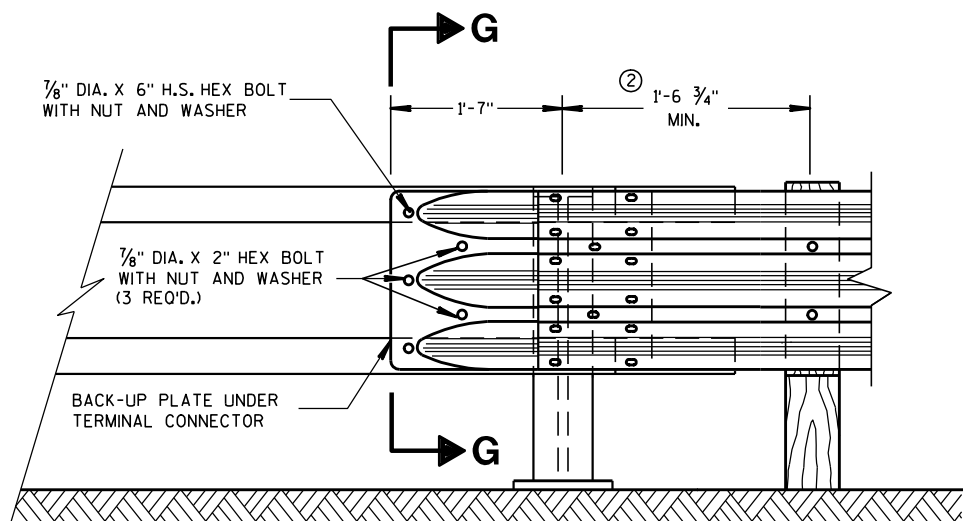
BACK-UP PLATE DETAIL



SECTION G-G

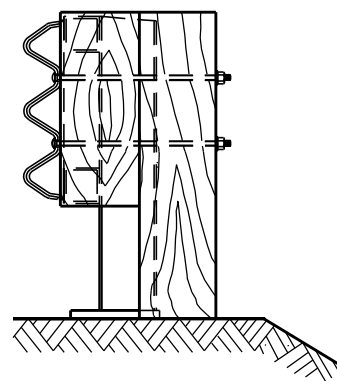


BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING



FRONT VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING TYPE "F"

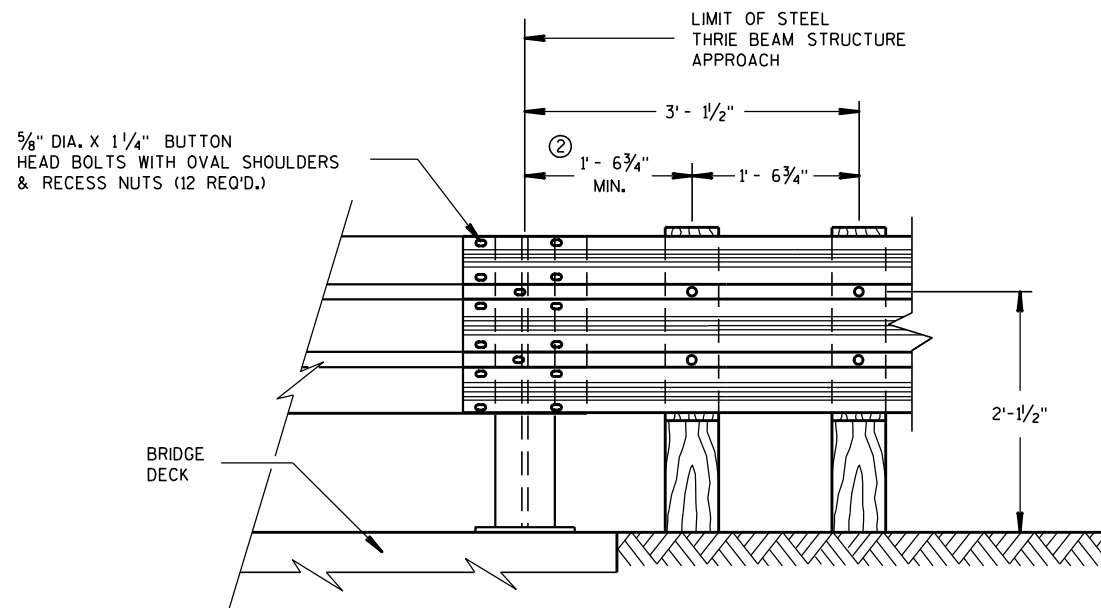


END VIEW

GENERAL NOTES

BOLTS, PLATES, NUTS AND WASHERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 325 AND BE GALVANIZED IN ACCORDANCE WITH ASTM A 153.

- ① DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- ② VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL AS CLOSE AS FEASIBLE TO THE STEEL END POST.



FRONT VIEW

THRIE BEAM CONNECTION TO STEEL RAILING TYPE "W"

STEEL THRIE BEAM STRUCTURE
APPROACH, CONNECTION TO BRIDGE
RAILING TYPES "F" AND "W"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

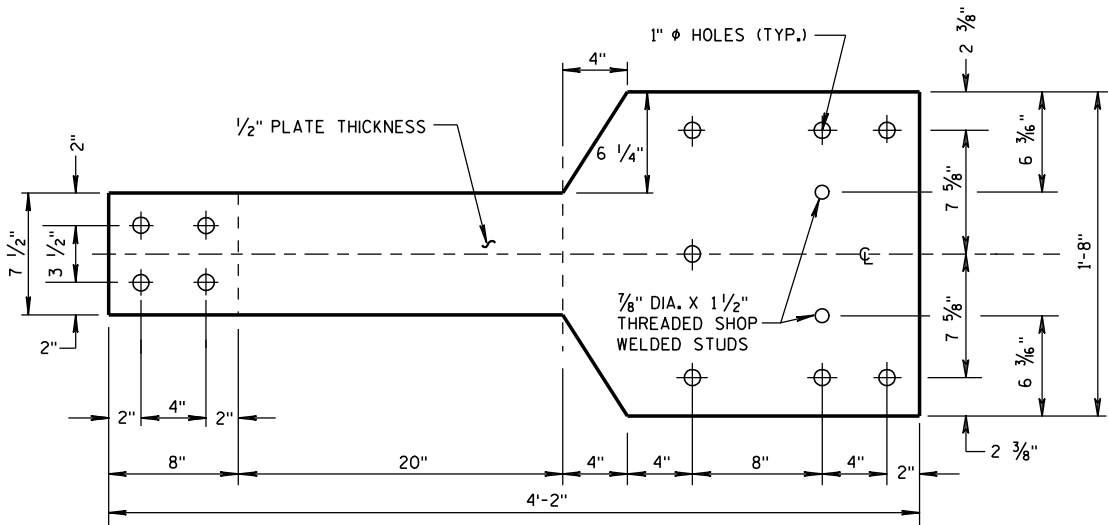
8/31/2012
DATE

FHWA

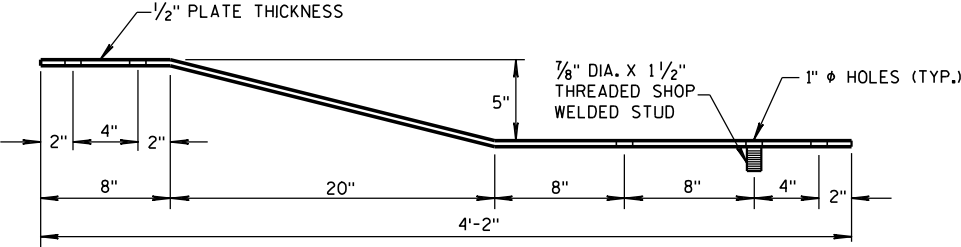
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

GENERAL NOTES

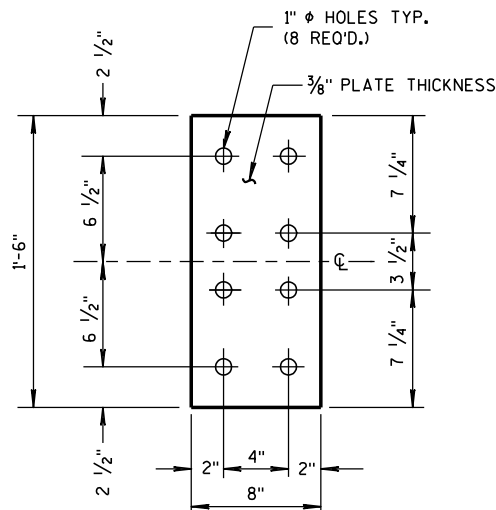
① VARY THIS DIMENSION DEPENDING ON ABUTMENT TYPE, WINGWALL DETAILS, AND ANGLE OF SKEW. PLACE THE FIRST WOOD POST OFF THE BRIDGE SHALL BE AS CLOSE AS FEASIBLE TO THE STEEL END POST.



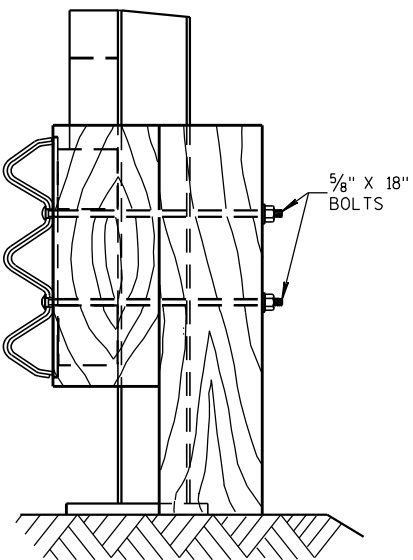
FRONT VIEW



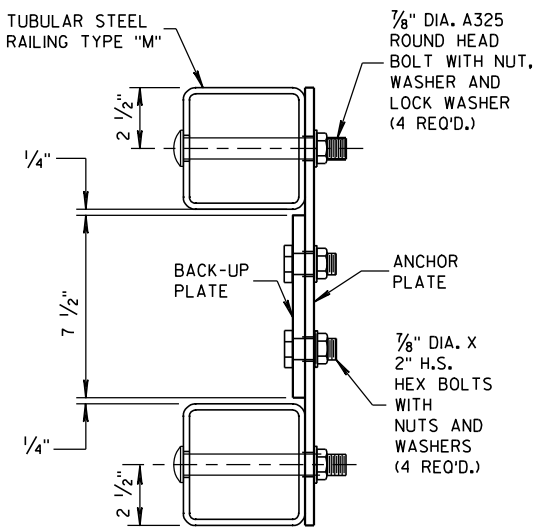
PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"



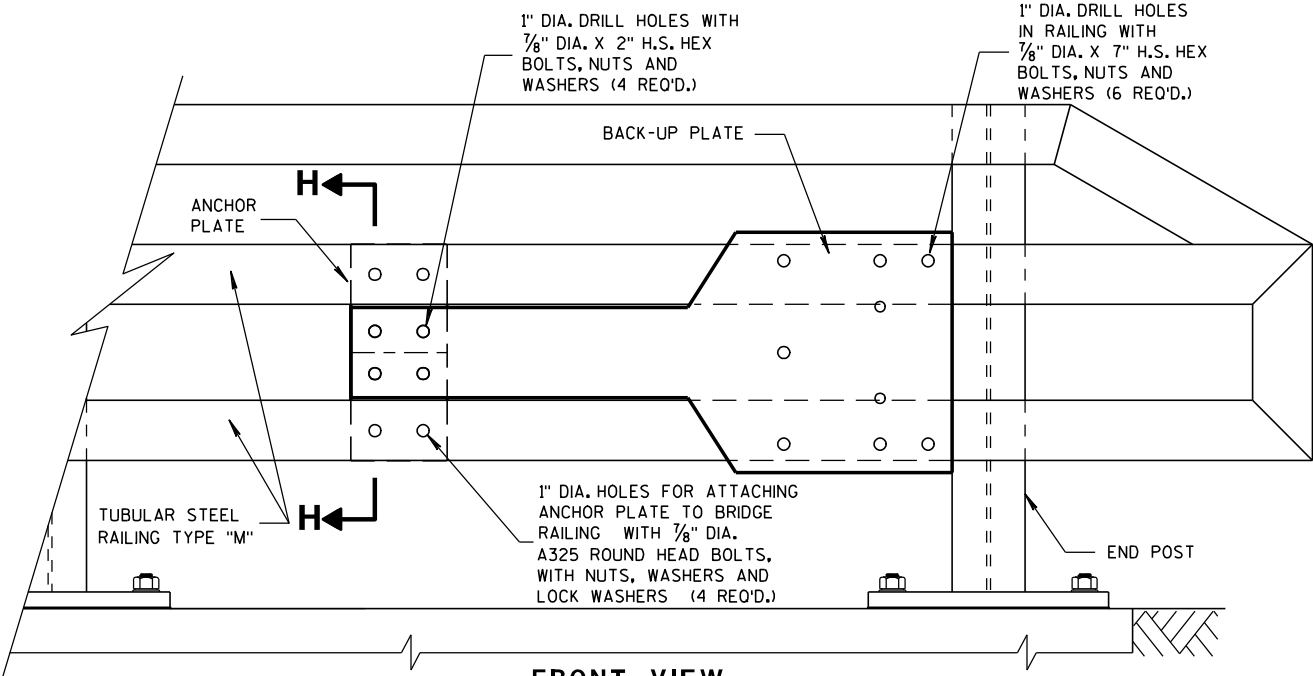
FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"



SECTION I-I

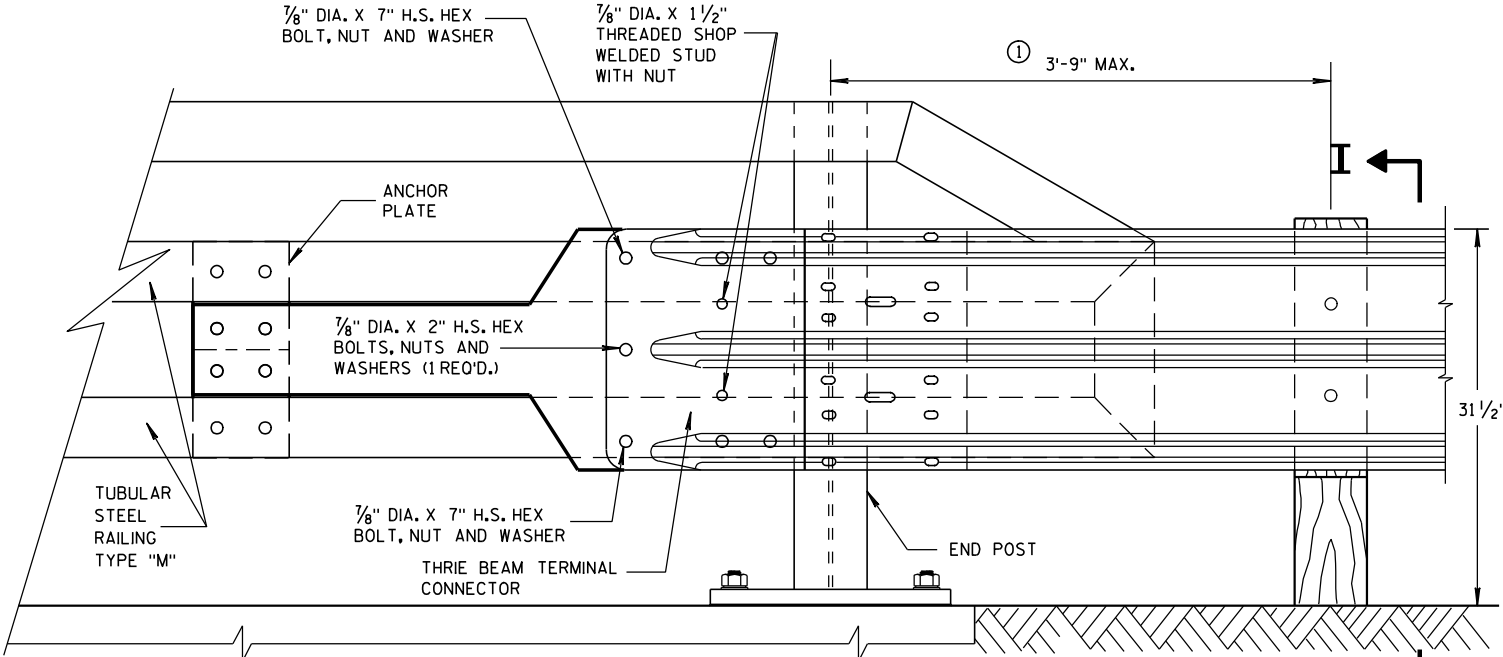


SECTION H-H

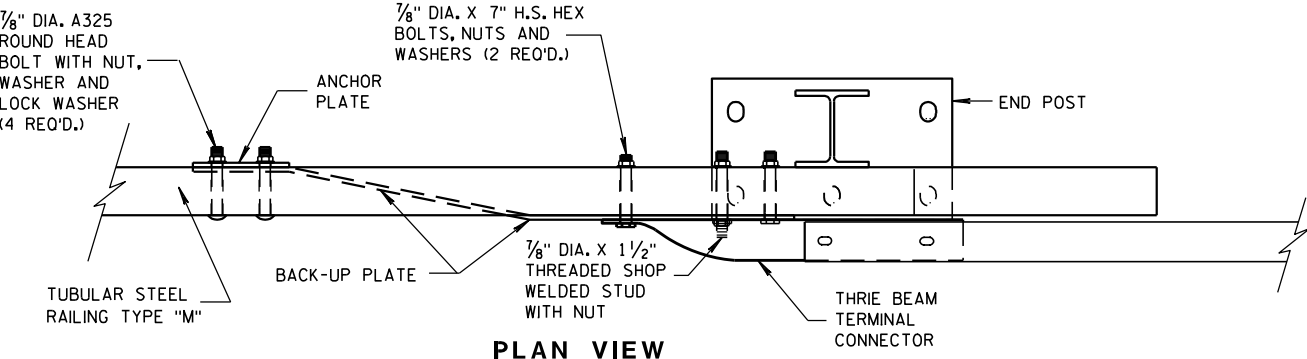


FRONT VIEW

ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



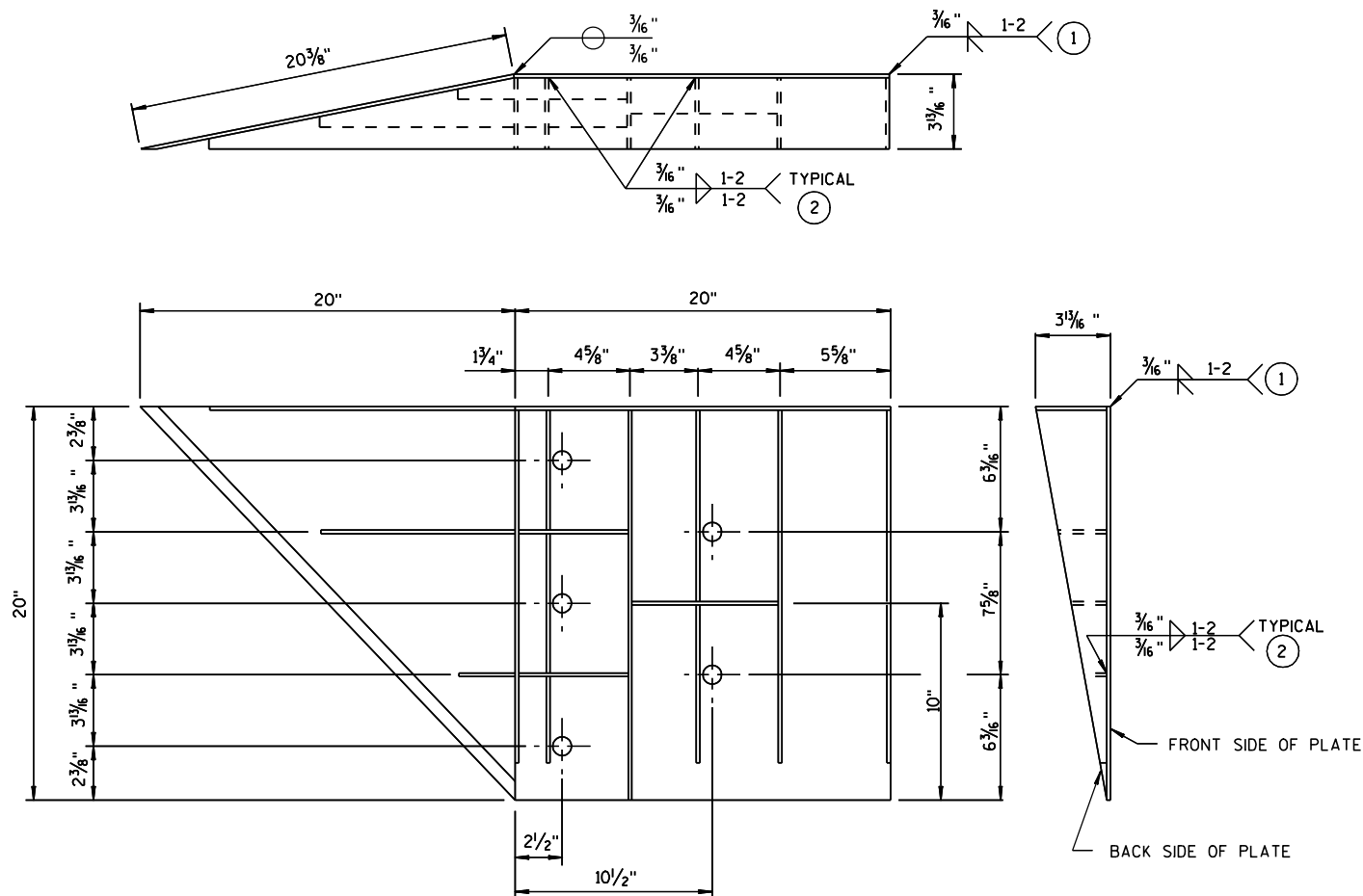
PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**STEEL THRIE BEAM STRUCTURE
APPROACH CONNECTION TO
BRIDGE RAILING TYPE "M"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 7/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 1/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 1/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 9/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 7/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 1/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 5/8" x 9 1/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 1/16"	1/4"

STEEL THRIE BEAM STRUCTURE APPROACH

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- 1 STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- 2 STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".

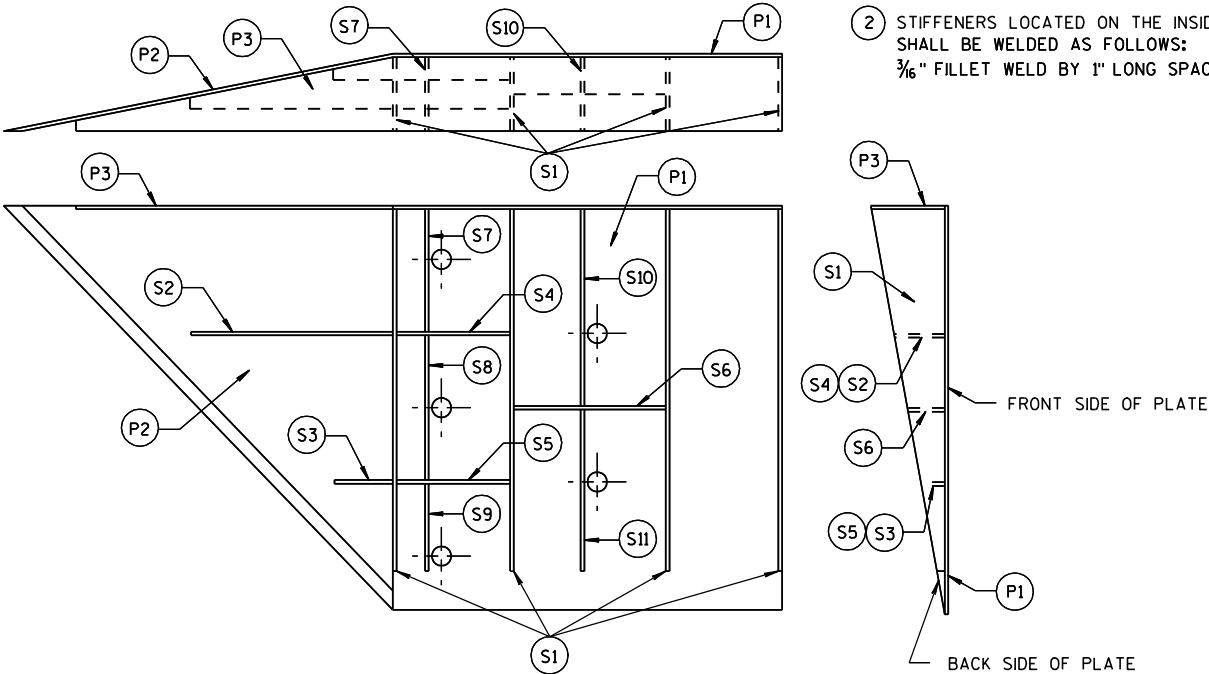


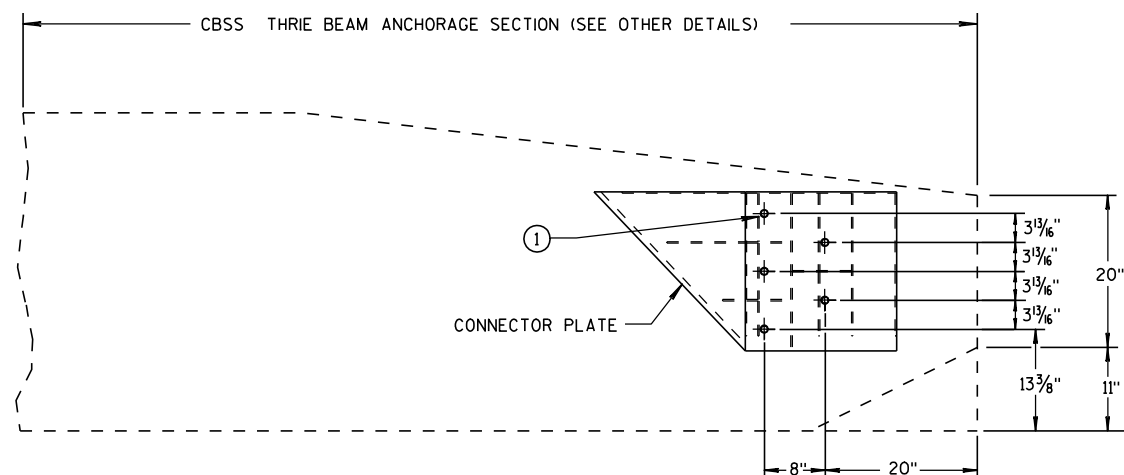
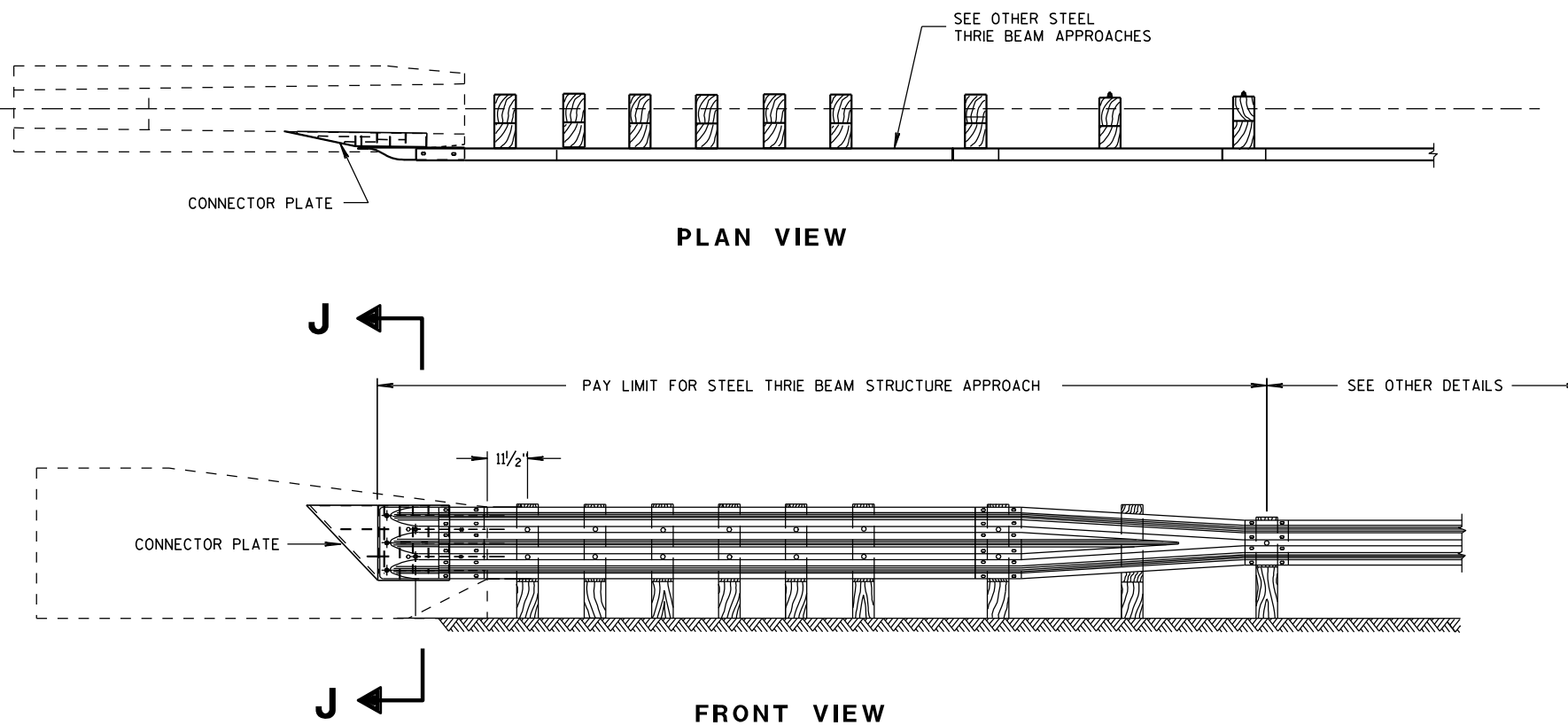
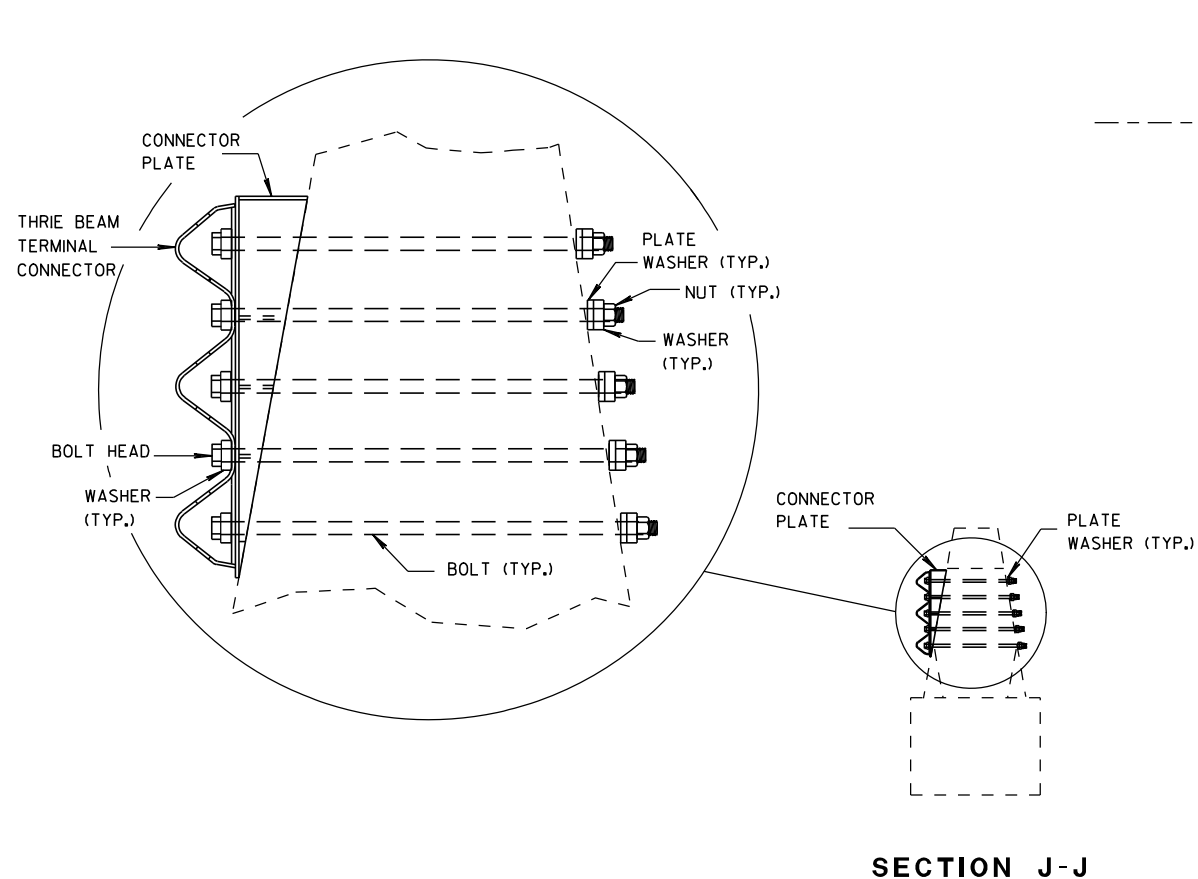
PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

STEEL THRIE BEAM
STRUCTURE APPROACH,
CONNECTOR PLATE DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8/31/2012
DATE
FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



CONNECTOR PLATE LOCATION

STEEL THRIE BEAM STRUCTURE APPROACH**GENERAL NOTES**

CONSTRUCT PER STANDARD SPECIFICATION 614.

CONNECTOR PLATE, DRILLING HOLES THROUGH PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

- ① BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM TERMINAL CONNECTOR. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/8" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.

**STEEL THRIE BEAM
STRUCTURE APPROACH,
SINGLE SLOPE ATTACHMENT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

8/31/2012

DATE

FHWA

/S/ Jerry H. Zogg

ROADWAY STANDARDS DEVELOPMENT

ENGINEER

BILL OF MATERIALS

NOTE NO.	DESCRIPTION
①	WOOD BREAKAWAY TERMINAL POST: 5½" X 7½" X 3'-9"
②	STEEL TUBE TS 8" X 6" X 0.188", 6'-0"
④	WOOD BREAKAWAY CRT POST: 6" X 8" X 6'-0"
⑤	WOOD OFFSET BLOCKS: 6' X 8" X 1'-2"
⑥	PIPE SLEEVE: 2" X 5 ½" STANDARD PIPE
⑦	BEARING PLATE
⑧	BCT CABLE ASSEMBLY
⑨	CABLE ANCHOR BOX
⑩	STRUT & YOKE
⑪	STEEL PLATE BEAM, END PANEL 12 GA.
⑫	STEEL PLATE BEAM: 12 GA. 13'-6½"
⑬	IMPACT HEAD
⑭	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE F PER SECTION 637 OF THE STANDARD SPECIFICATIONS

GENERAL NOTES

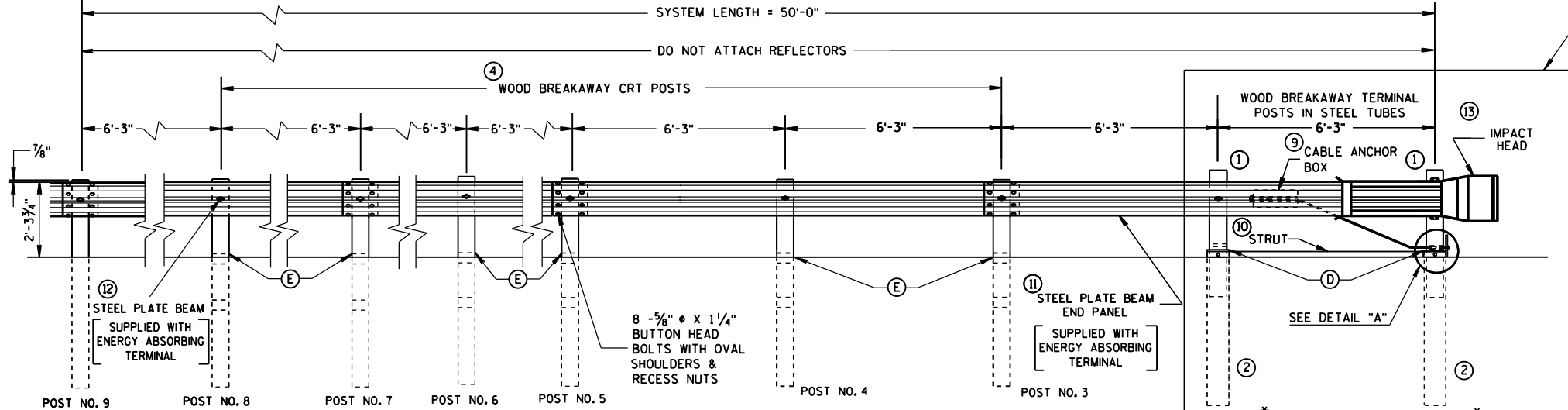
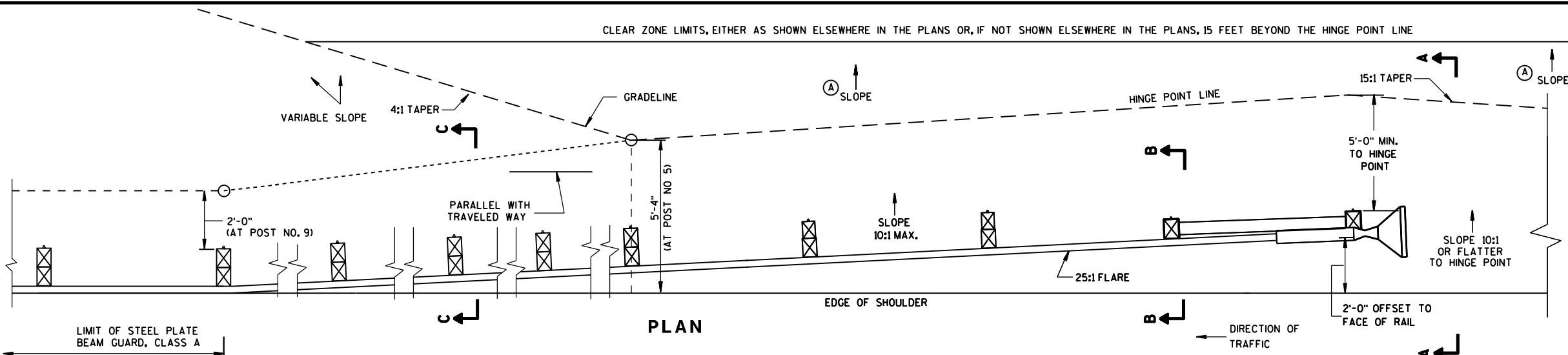
FOLLOW MANUFACTURE'S BOLTING RECOMMENDATIONS.

- (A) THE SLOPE IN THE AREA BOUNDED BY THE GRADELINE, THE HINGE POINT LINE (HPL), AND THE CLEAR ZONE LIMITS (CZL) SHALL BE 4:1 OR FLATTER.
- (B) AFTER FINAL ASSEMBLY, RECHECK CABLE TO BE SURE IT IS TAUT AND HAS NOT RELAXED.
- (D) THE TOP OF THE STEEL TUBE ON POSTS 1 AND 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.
- (E) THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST 3 THROUGH 8 SHALL BE ¾" ABOVE THE FINISHED GROUND LINE.
- (F) ATTACH ALUMINUM SHEET TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS, ONE SCREW PER CORNER.

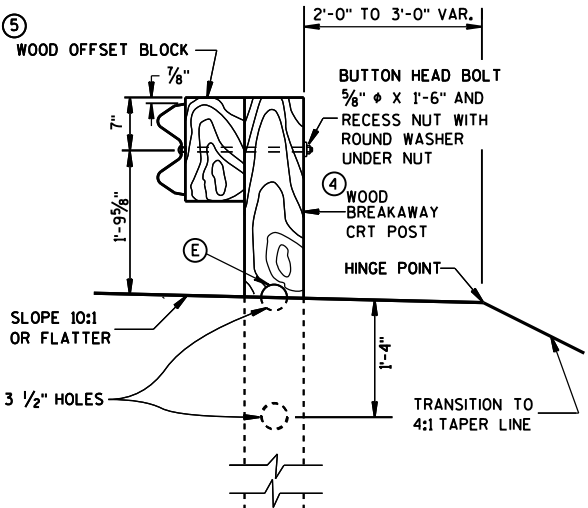
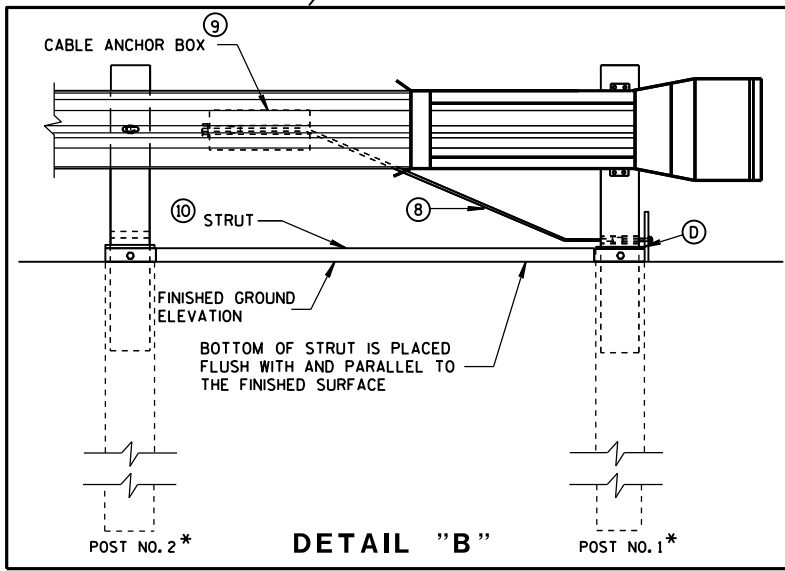
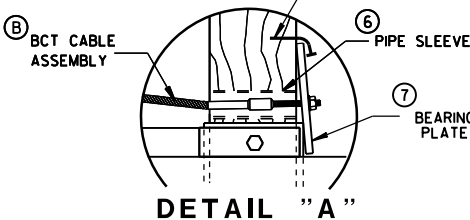
STEEL POSTS SHALL NOT BE ALLOWED FOR USE WITH ENERGY ABSORBING TERMINALS.

DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

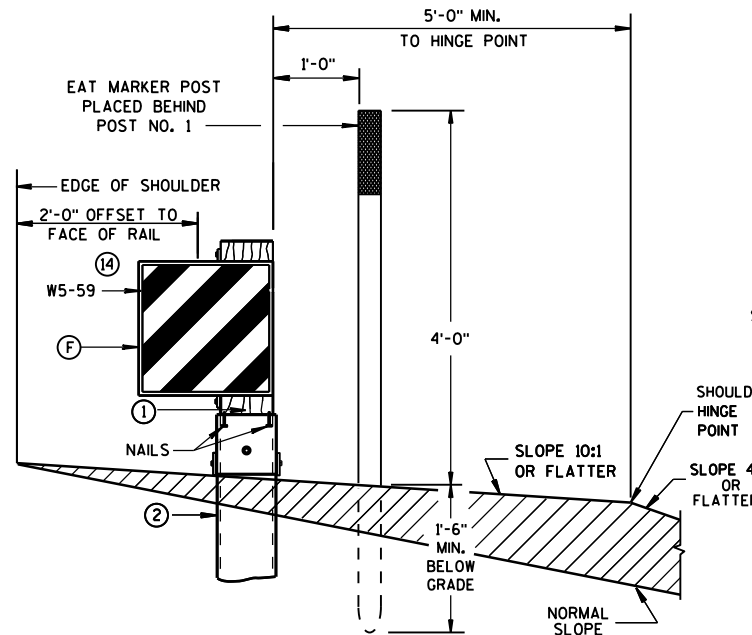
*DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.



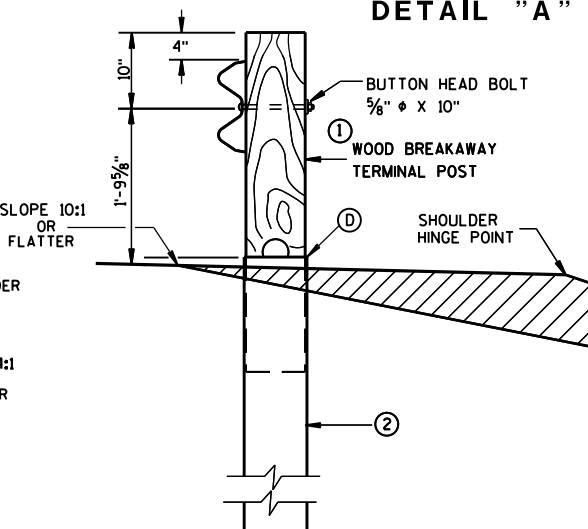
ELEVATION



SECTION C-C
TYPICAL AT POST NOS. 6, 8



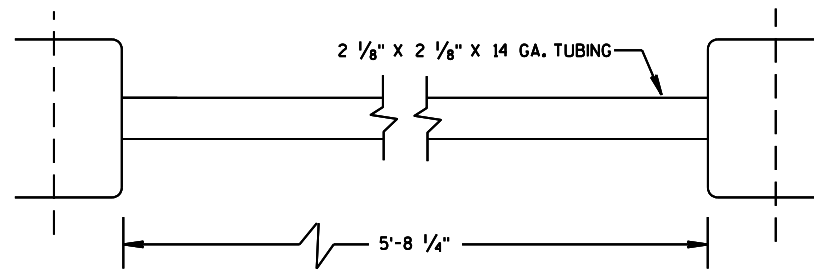
SECTION A-A
TYPICAL AT POST NO. 1*



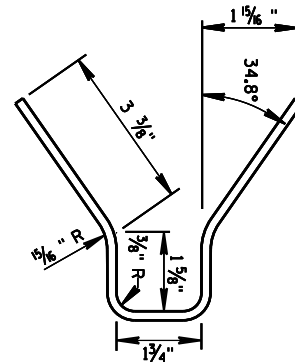
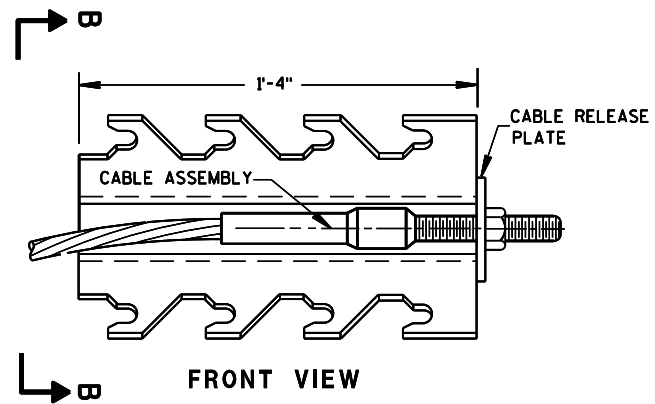
SECTION B-B
TYPICAL AT POST NO. 2*

STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL

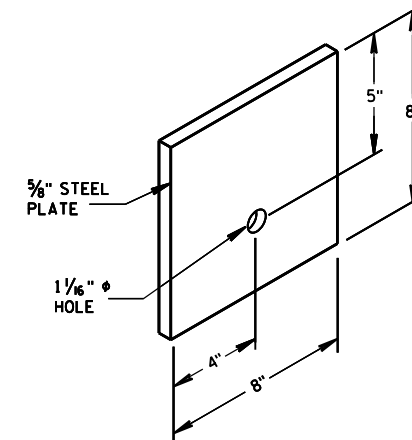
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



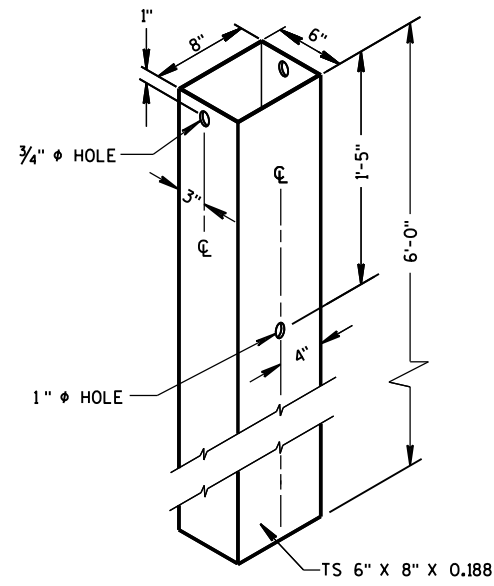
⑩ STRUT DETAIL



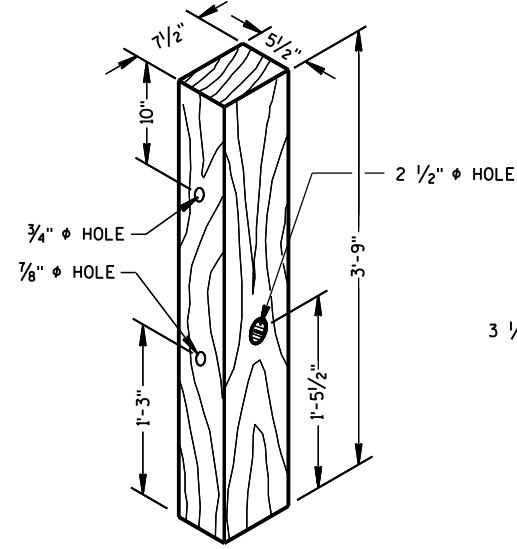
⑨ CABLE ANCHOR BOX



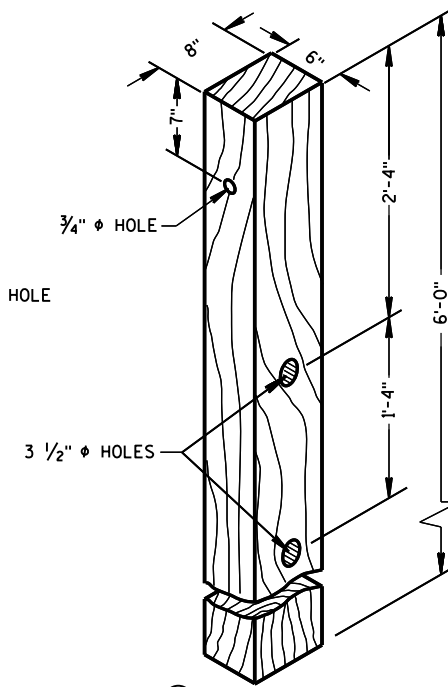
⑦ STEEL BEARING PLATE



② **72" STEEL TUBE**
(POSTS NO. 1-2)



① **TERMINAL POST**

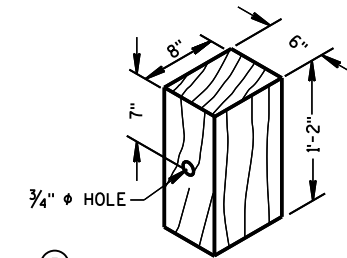


④ **CRT POST**
(POSTS NO'S 5-8)

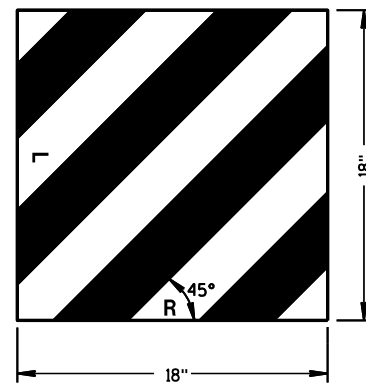
WOOD BREAKAWAY POSTS

GENERAL NOTES

WHEN ROCK IS ENCOUNTERED DURING EXCAVATION, A 12 INCH DIA. POST HOLE EXTENDING 20 INCHES DEEP INTO THE ROCK MAY BE USED IF APPROVED BY THE ENGINEER. GRANULAR MATERIAL SHALL BE PLACED IN THE BOTTOM OF THE HOLE APPROXIMATELY 2 1/2" INCHES DEEP TO PROVIDE DRAINAGE. THE SOIL TUBES SHALL BE FIELD CUT TO LENGTH, PLACED IN THE HOLE AND BACKFILLED WITH ADEQUATELY COMPACTED MATERIAL EXCAVATED FROM THE HOLE.



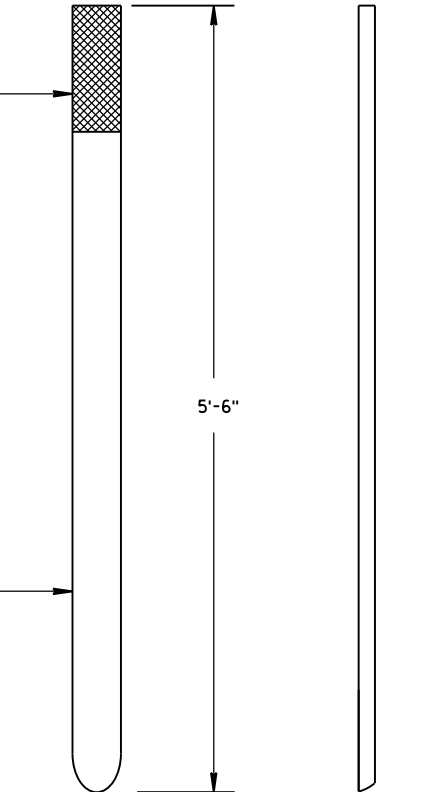
⑤ **WOOD OFFSET BLOCK**
REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2



⑭ **REFLECTIVE SHEETING DETAILS**

TYPE H
YELLOW REFLECTIVE
SHEETING 3" X 9".
SEE STANDARD
SPECIFICATION 637.

E.A.T. MARKER
POST (YELLOW)
SEE APPROVED
PRODUCTS LIST



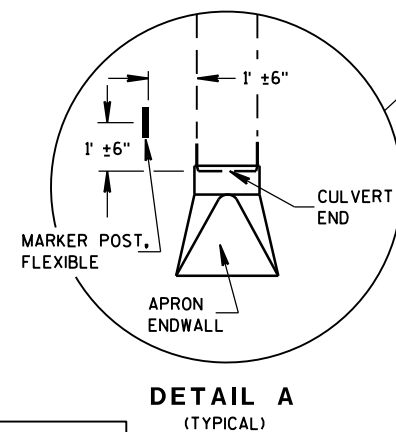
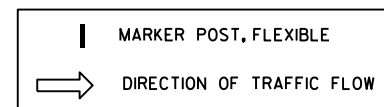
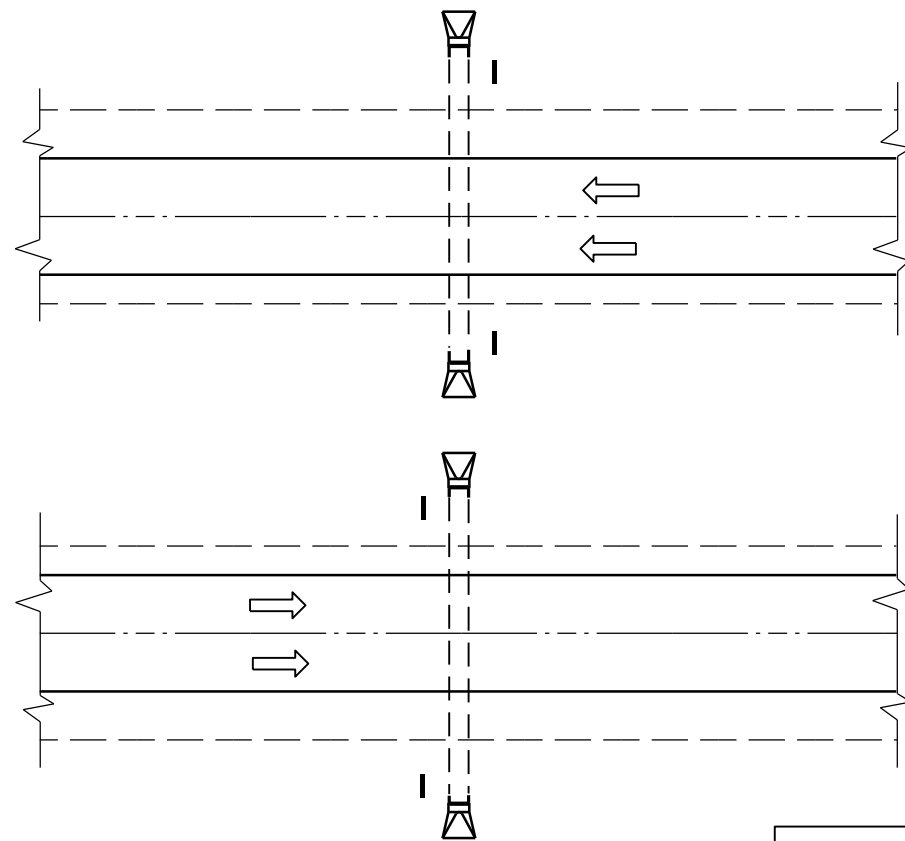
FRONT VIEW SIDE VIEW
E.A.T. MARKER POST

**STEEL PLATE BEAM GUARD
ENERGY ABSORBING TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

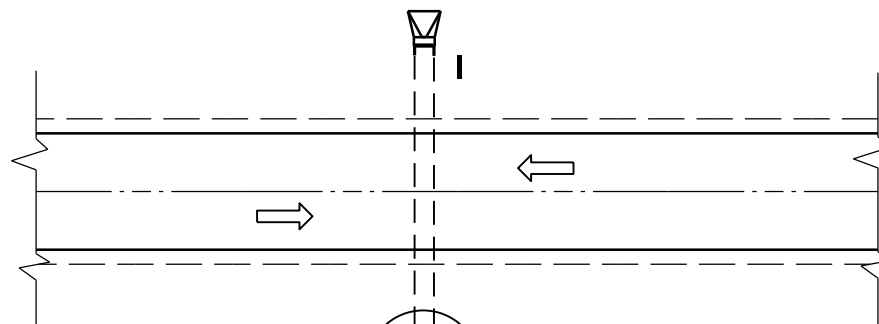
APPROVED
June 2017 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

PLAN VIEW
DIVIDED HIGHWAY

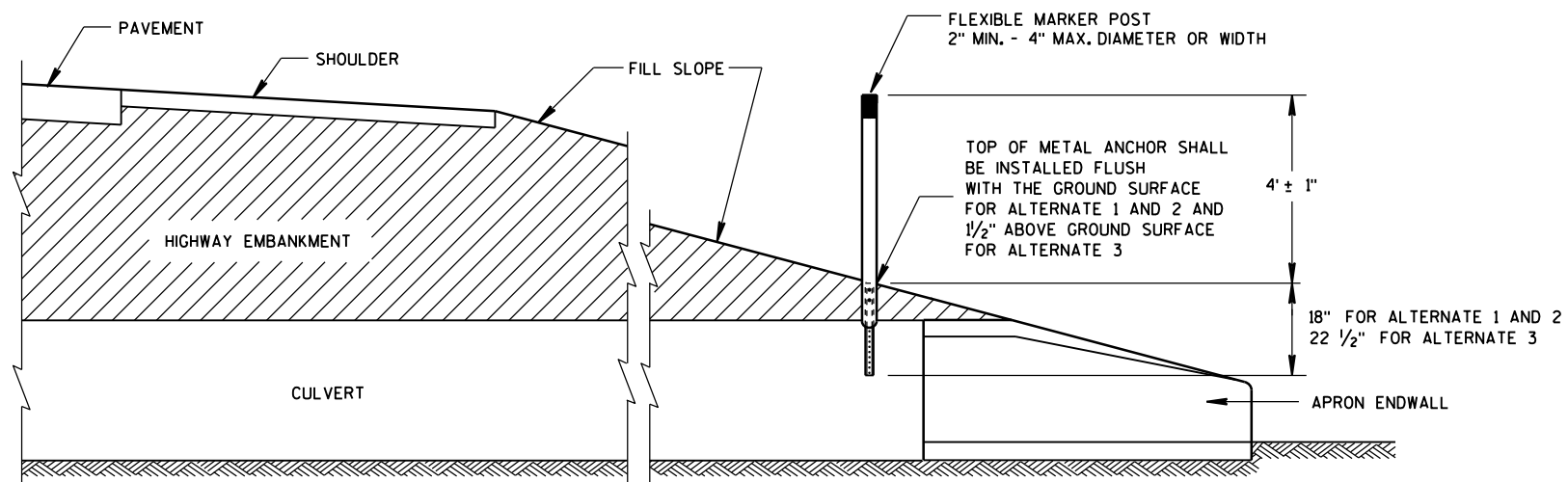


DETAIL A
(TYPICAL)

PLAN VIEW
UNDIVIDED HIGHWAY



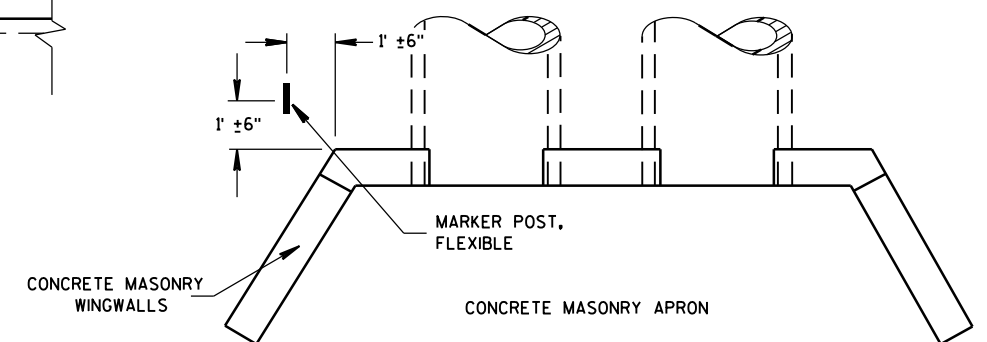
FLEXIBLE MARKER POST LOCATION



CROSS SECTION
FLEXIBLE MARKER POST

GENERAL NOTES

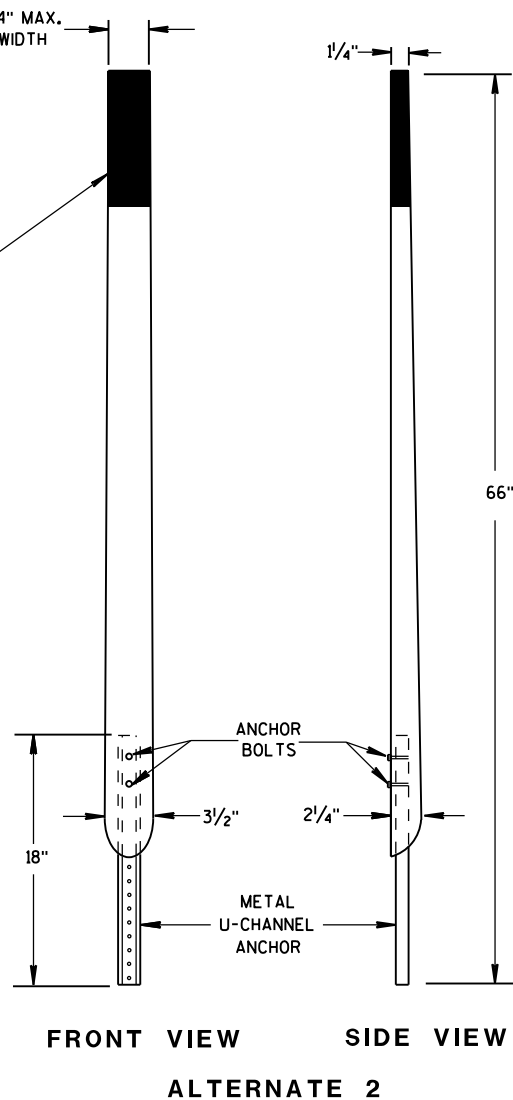
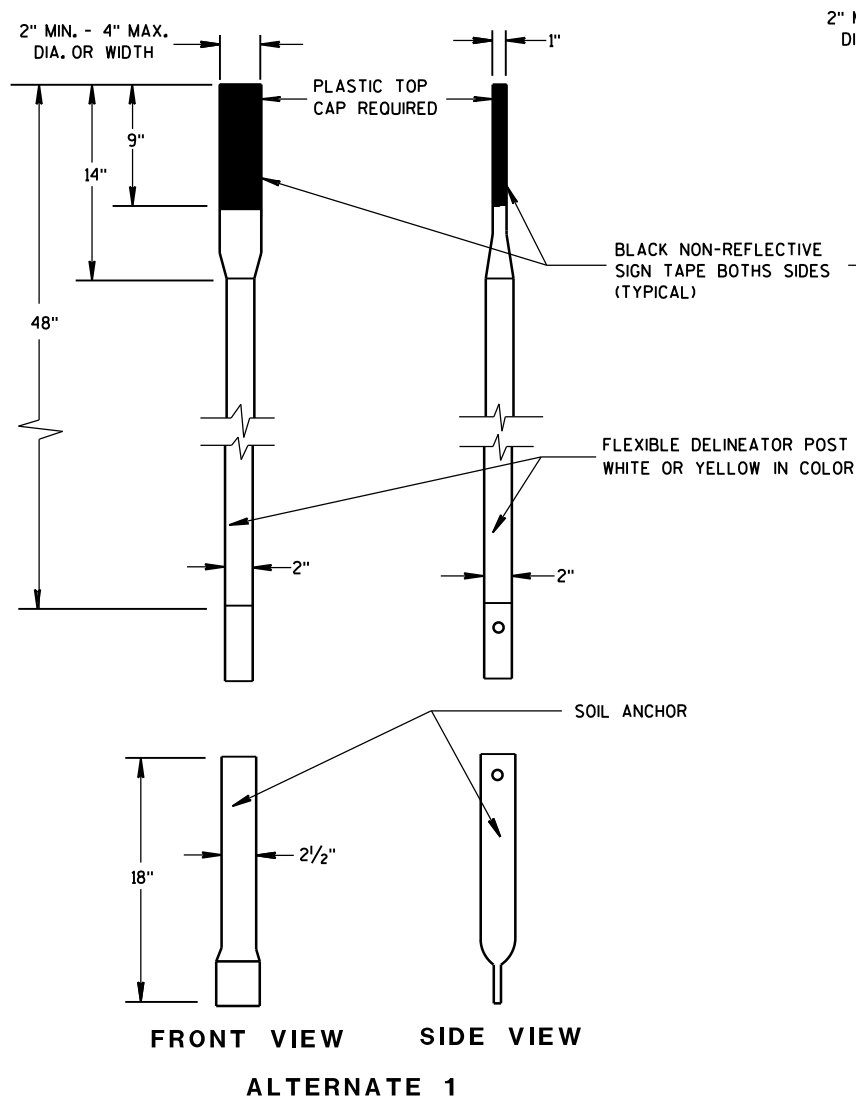
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.



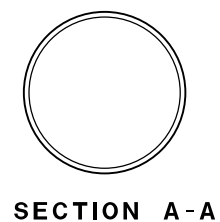
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH

FLEXIBLE MARKER POST
FOR CULVERT END

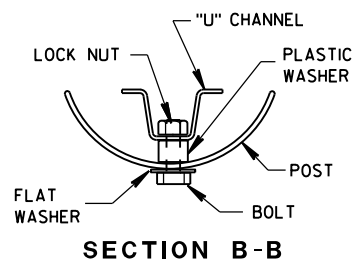
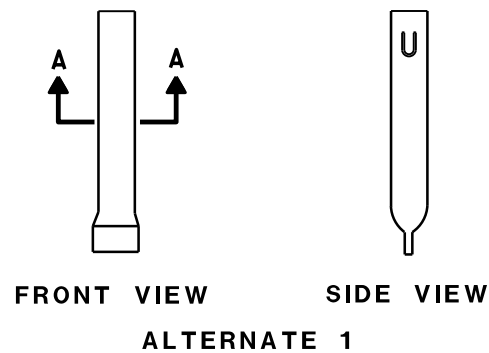
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



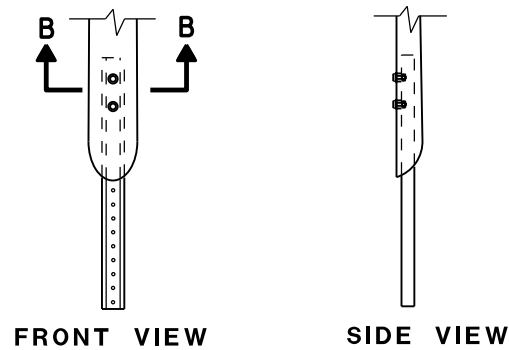
FLEXIBLE MARKER POSTS



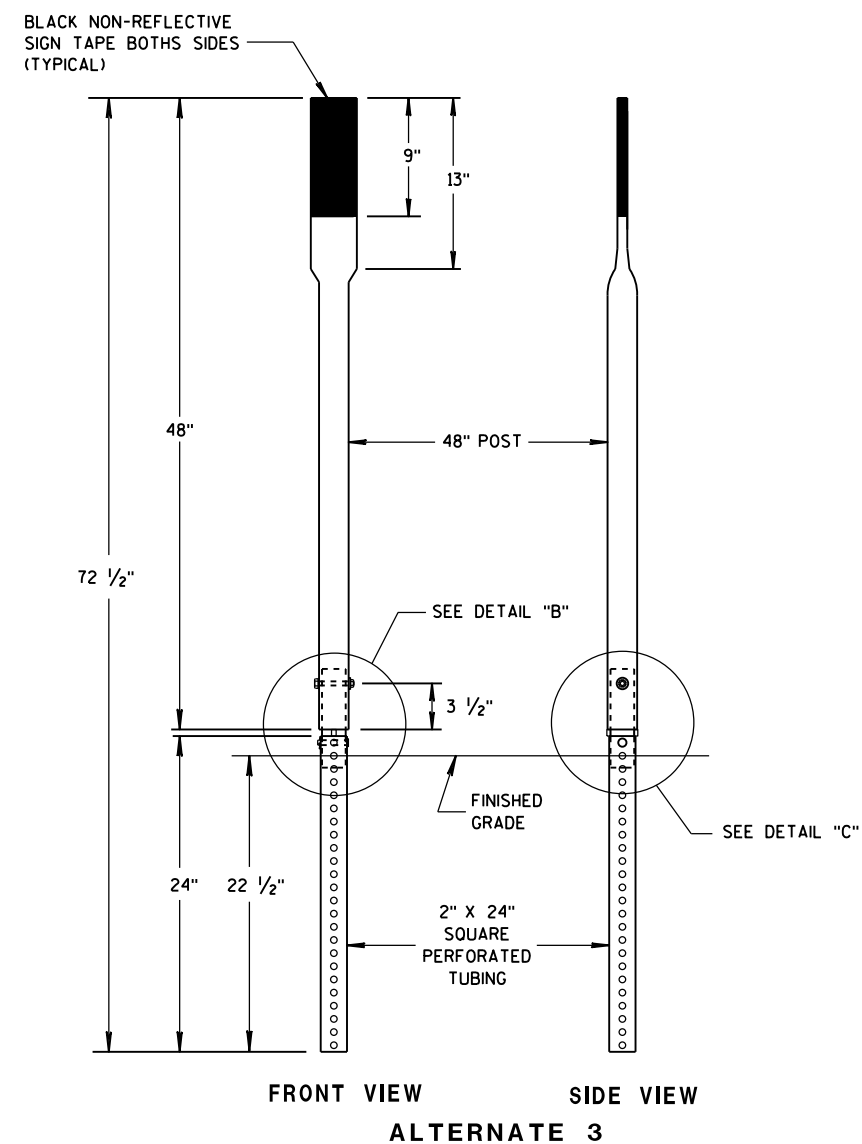
SECTION A-A



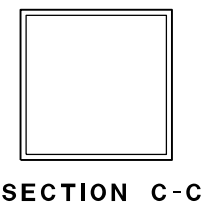
SECTION B-B



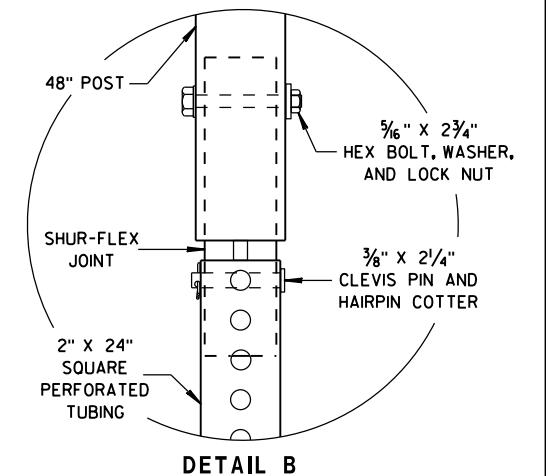
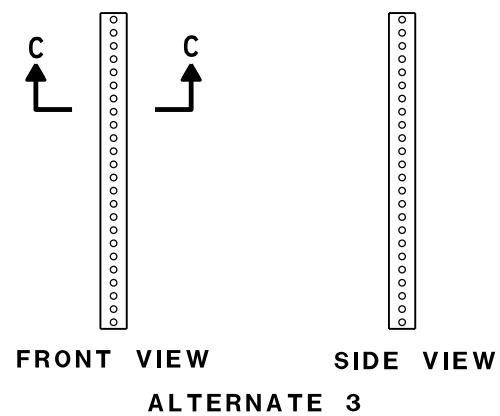
FLEXIBLE MARKER POST ANCHORS



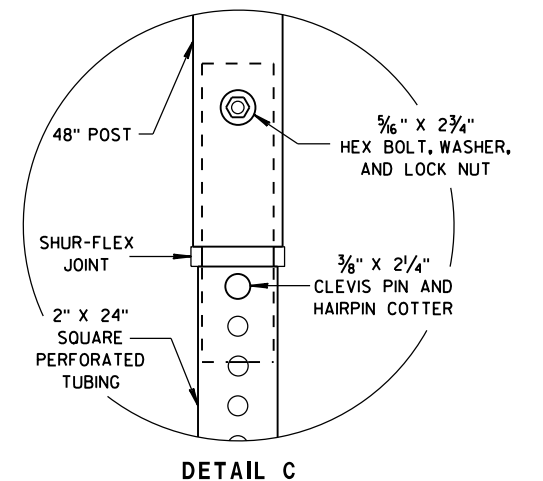
FLEXIBLE MARKER POSTS



SECTION C-C



DETAIL B

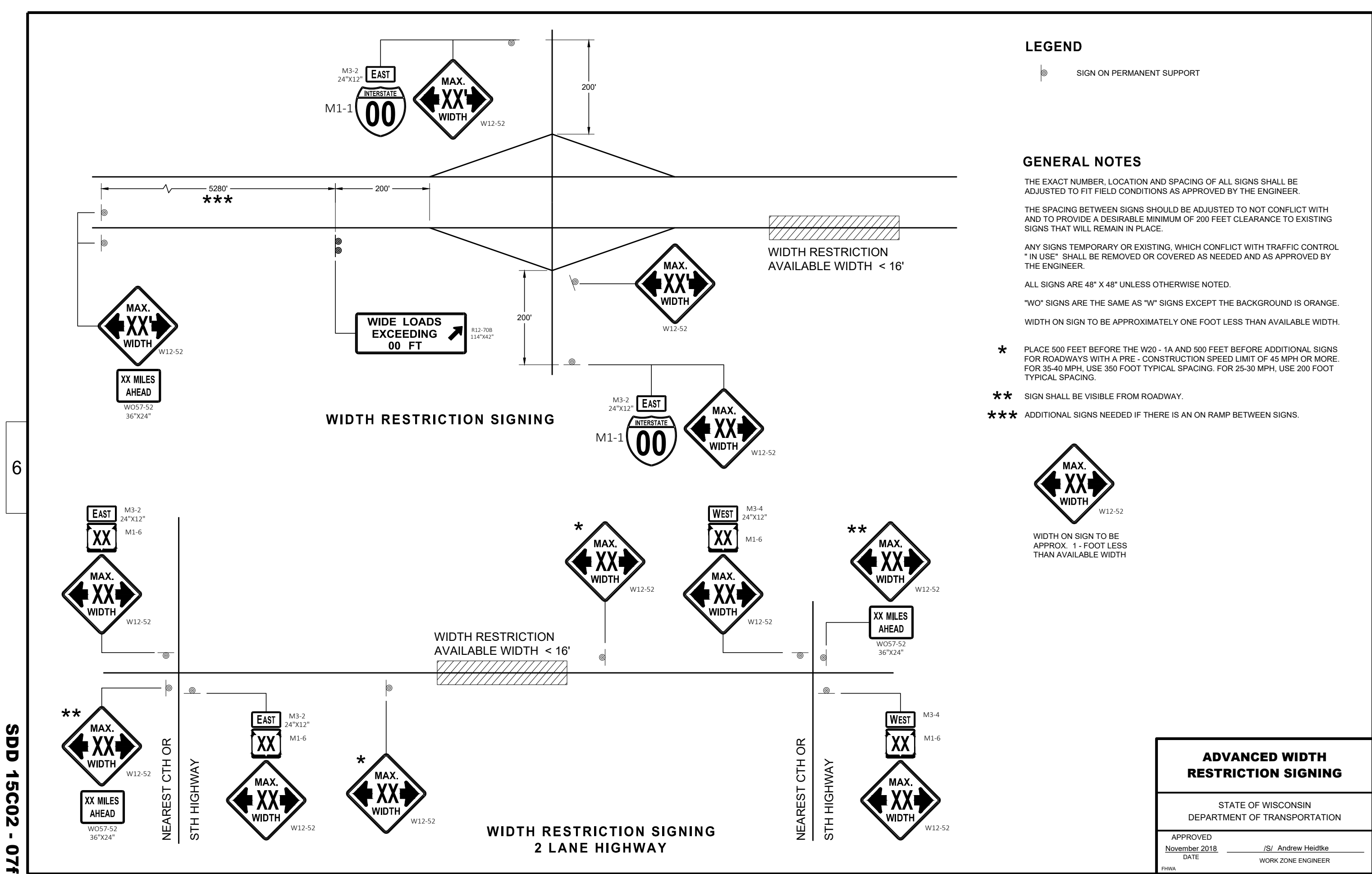


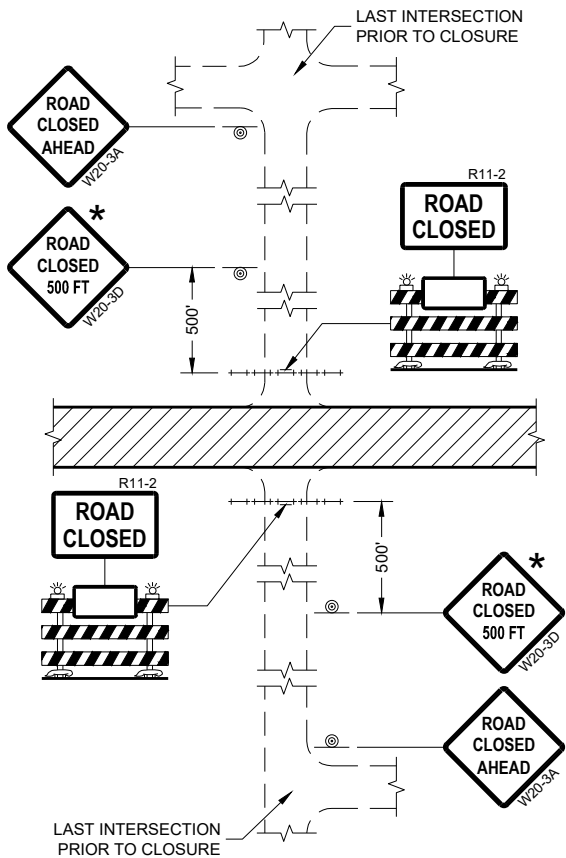
DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

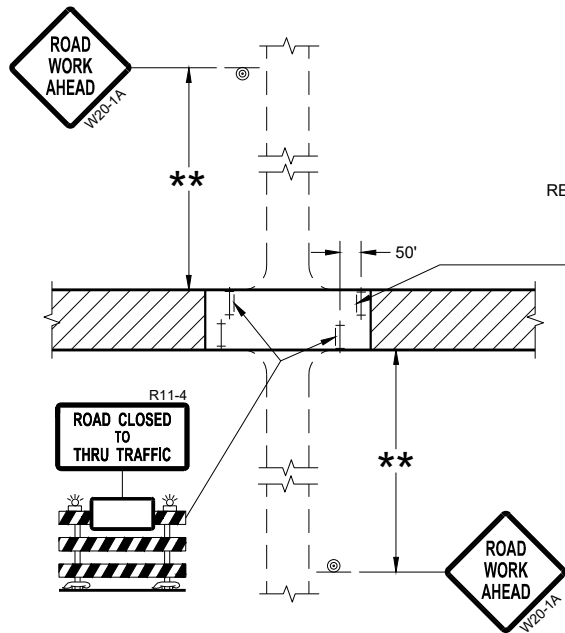
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

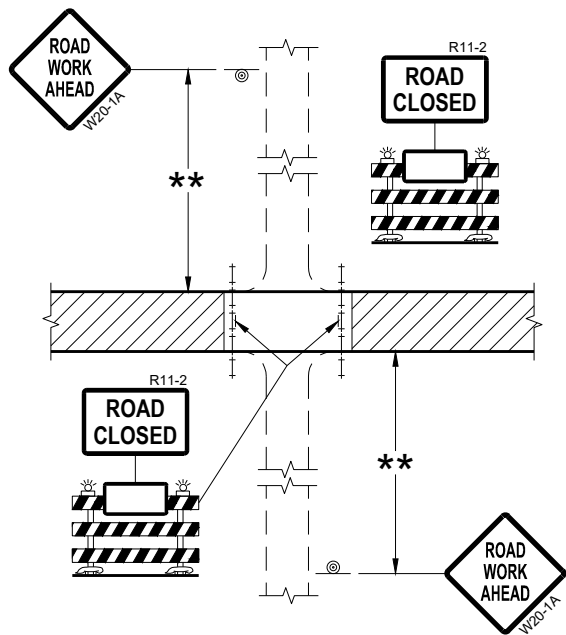




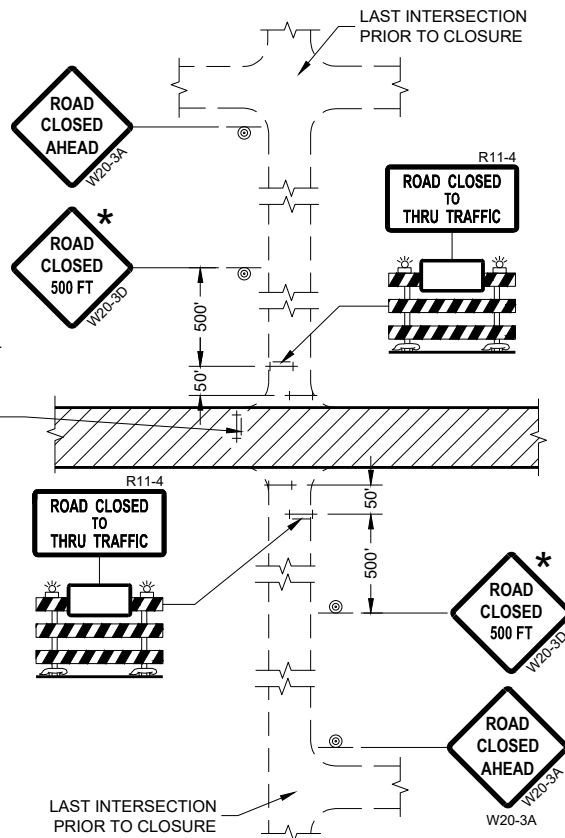
DETAIL 1
(NO ACCESS TO PROJECT)



DETAIL 3
(PUBLIC CROSS-TRAFFIC MAINTAINED.
CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)



DETAIL 2
(PUBLIC CROSS-TRAFFIC MAINTAINED.
NO ACCESS TO PROJECT)



DETAIL 4
(CONTRACTOR, LOCAL BUSINESS AND
RESIDENT ACCESS TO PROJECT)

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE (500 FEET DESIRABLE) TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY REESTABLISHED UPON COMPLETION OF THE OPERATION OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW-INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11-2, R11-3, AND R11-4 SIGNS PLACED ON BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE OR BOTTOM RAILS.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:
R11-2 SHALL BE 48" X 30".
R11-4 AND R11-3 SHALL BE 60" X 30".

- * OMIT THE "ROAD CLOSED 500 FT." SIGN IF THE LAST INTERSECTION IS 500 FEET OR LESS FROM THE WORK ZONE.
- ** 500' MAX. OR AT LAST INTERSECTION, WHICHEVER IS CLOSEST.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA

BARRICADES AND SIGNS FOR SIDEROAD CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.




ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

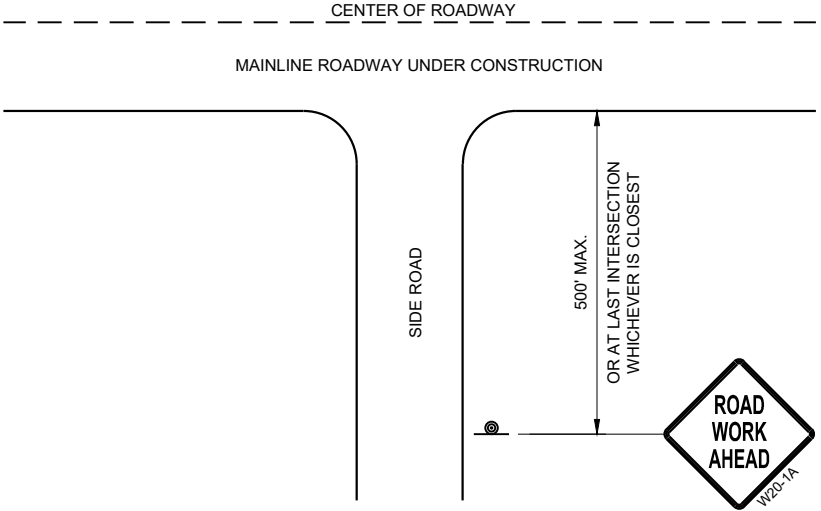
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF A "STOP" SIGN MUST BE REMOVED FOR A WORK OPERATION, A TEMPORARY "STOP" SIGN SHALL BE PLACED PRIOR TO THE SIGN REMOVAL, OR A FLAGGER SHALL BE PROVIDED UNTIL THE SIGN IS REESTABLISHED.

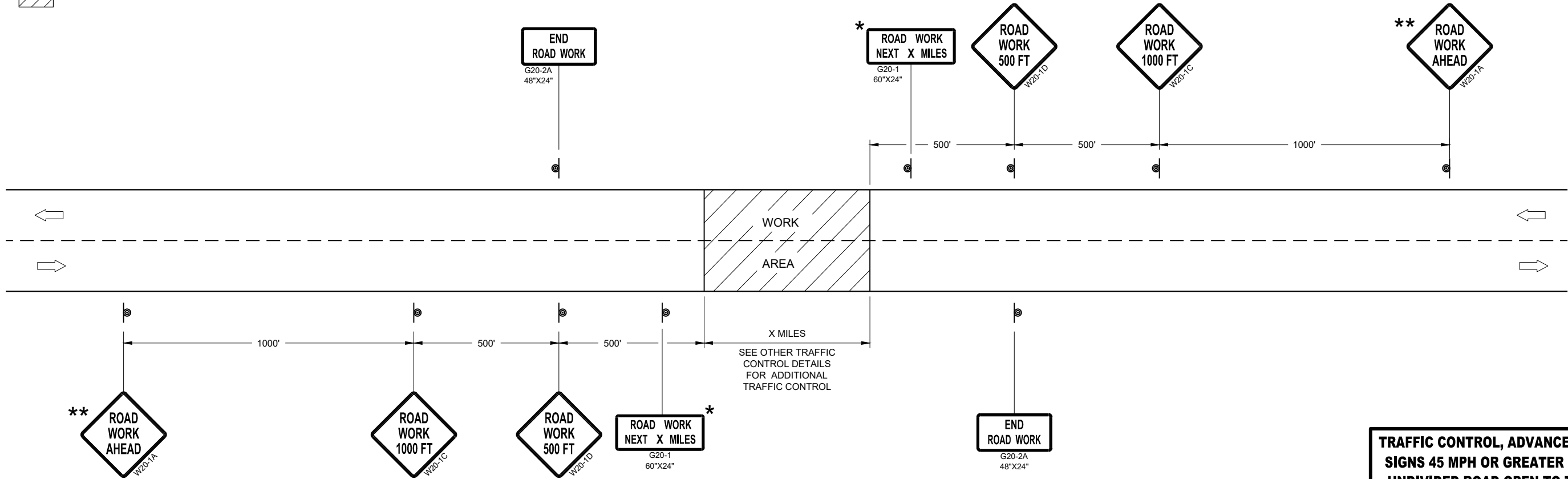
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC
-  WORK AREA



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL



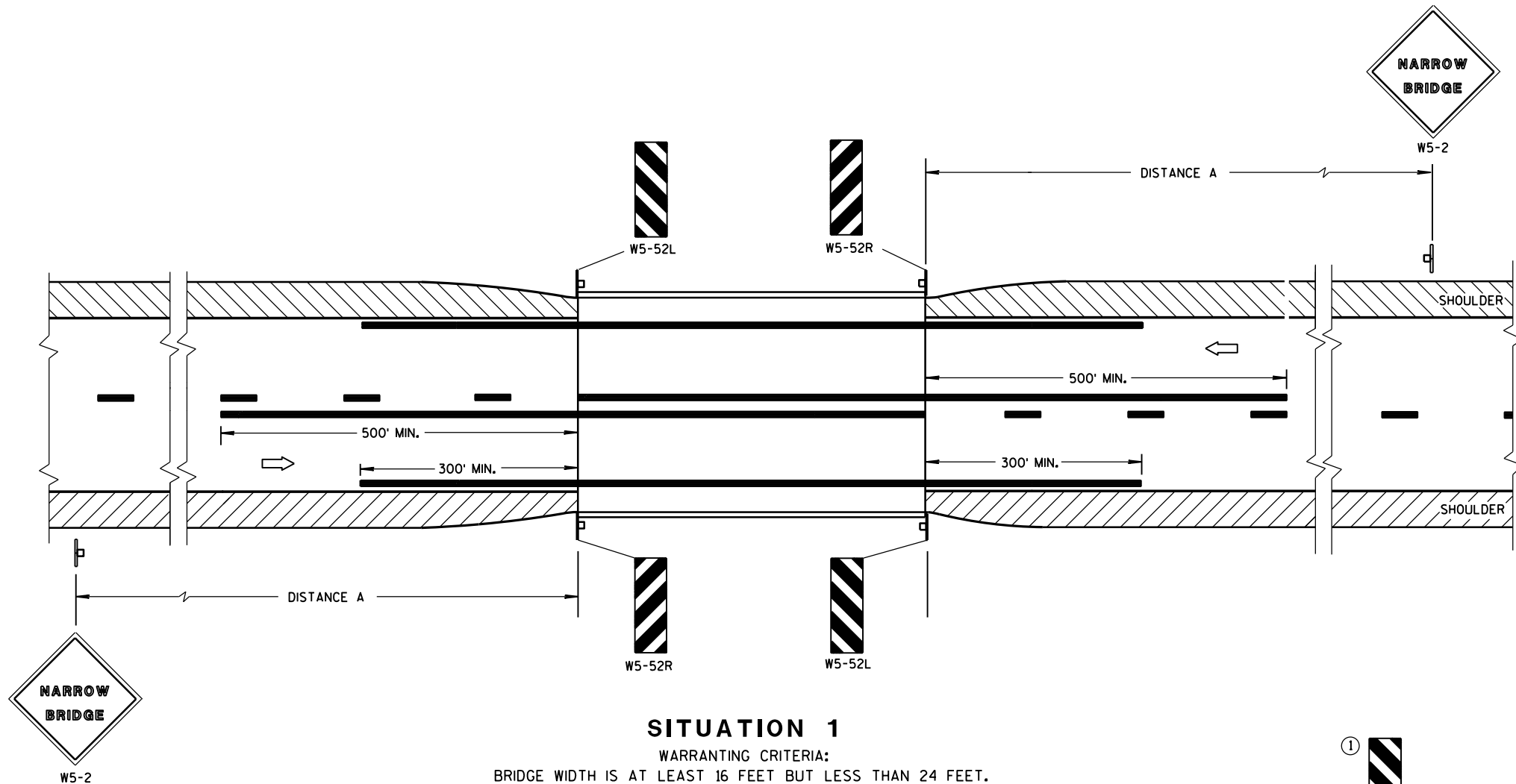
TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFICE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

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SITUATION 1

WARRANTING CRITERIA:
BRIDGE WIDTH IS AT LEAST 16 FEET BUT LESS THAN 24 FEET.

DISTANCE TABLE

POSTED OR 85th PERCENTILE SPEED	DISTANCE "A "
25	150'
30	200'
35	250'
40	300'
45	400'
50	550'
55	750'

GENERAL NOTES

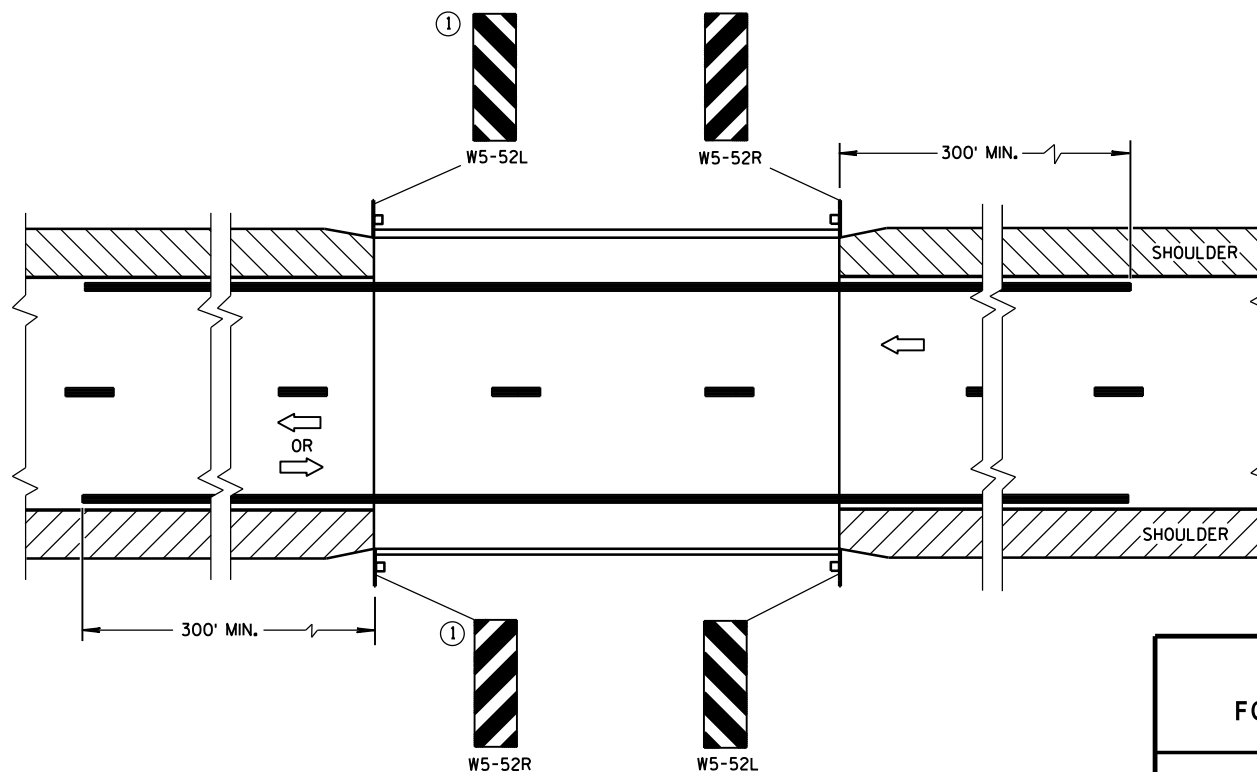
DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

LOCATE W5-52 SIGN POST(S) BEHIND GUARDRAIL WHEN PRESENT.

PLACE THE EDGE OF THE W5-52 SIGN IN LINE WITH FACE OF CURB OR PARAPET.

① OMIT ON ONE-WAY TRAVELLED WAYS.

➡ DIRECTION OF TRAFFIC



SITUATION 2

WARRANTING CRITERIA:
1. BRIDGE WIDTH IS AT LEAST 24 FEET AND
2. BRIDGE SHOULDER WIDTH IS LESS THAN 6 FEET.

SIGNING & MARKING FOR TWO LANE BRIDGES

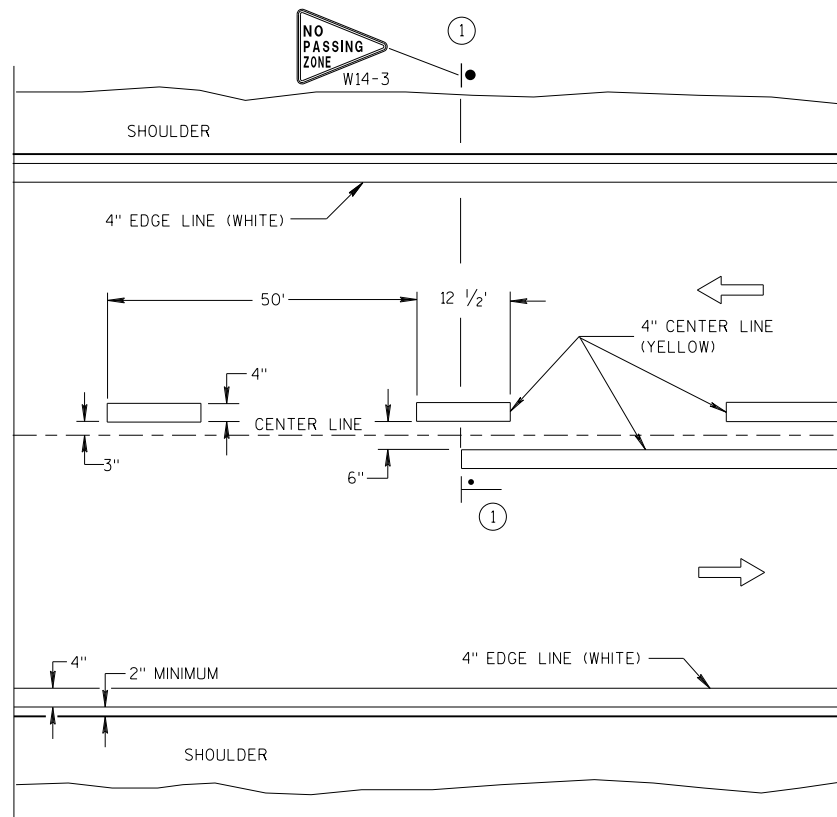
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

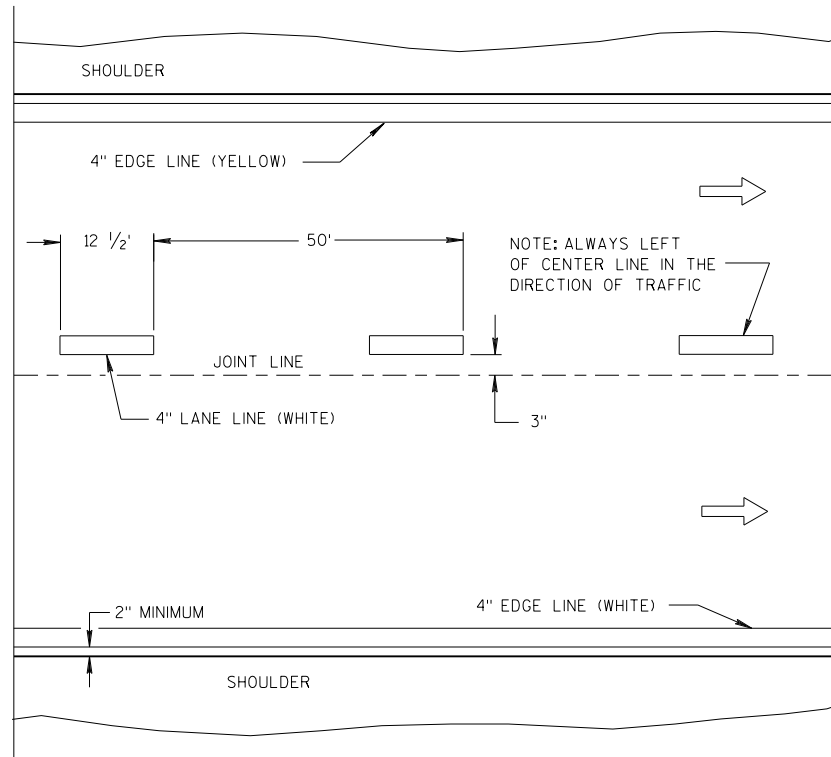
June 2017
DATE

/S/ Matthew R. Rauch
STATE SIGNING AND MARKING ENGINEER

FHWA

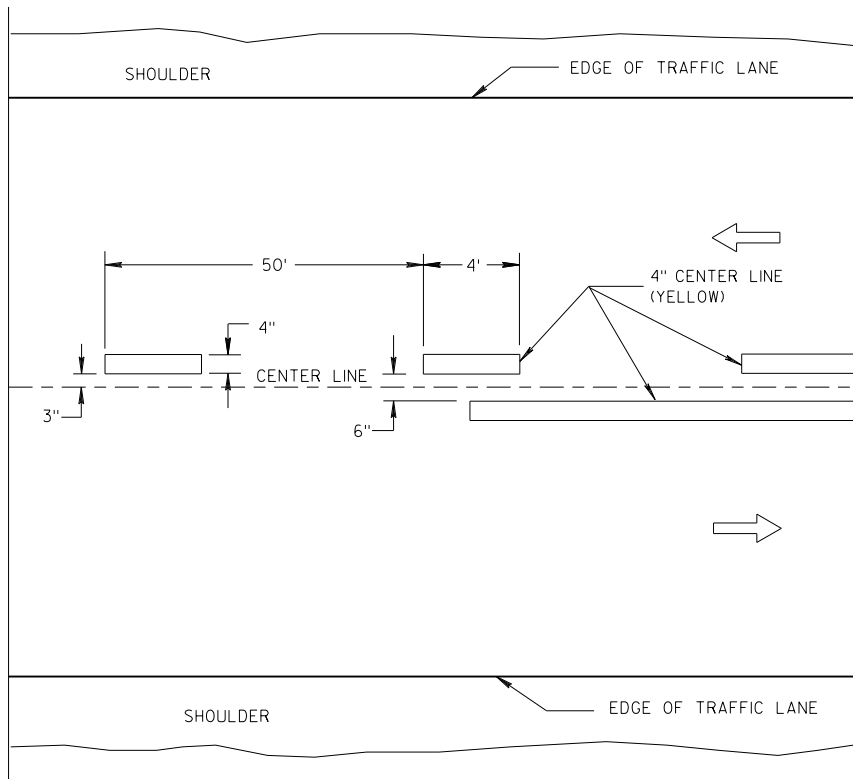


TWO WAY TRAFFIC

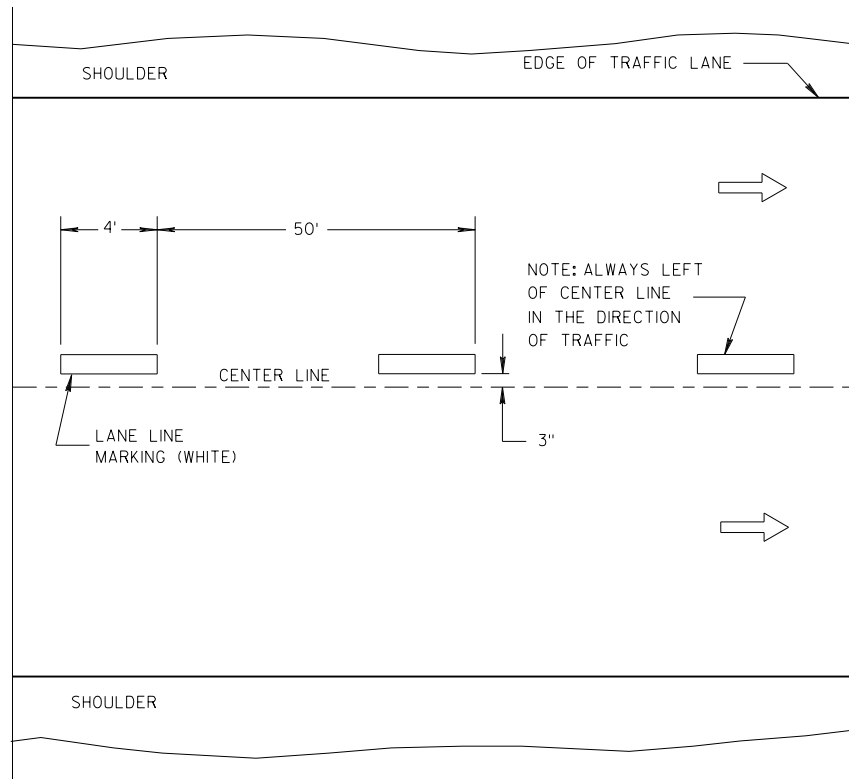


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING.

NOTE

ARROW SYMBOL (➡) SHOWS DIRECTION OF TRAVEL

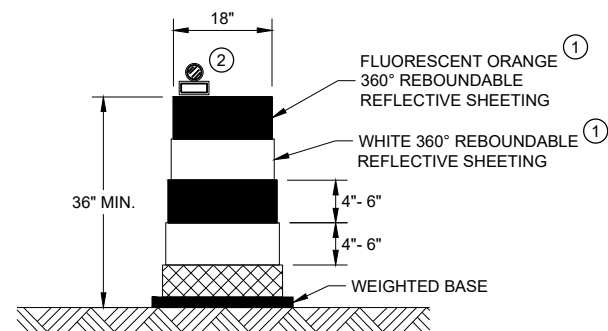
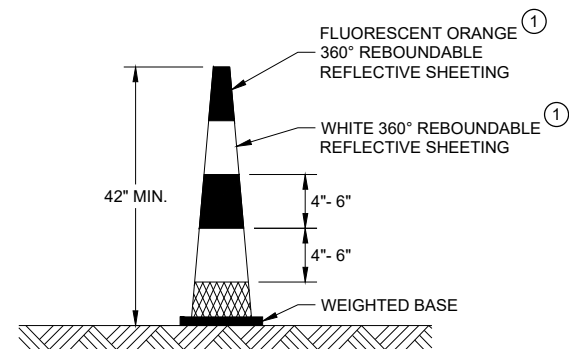
LEGEND

- "T" MARKING
- POST MOUNTED SIGN

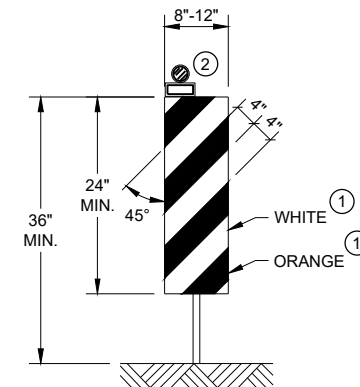
LONGITUDINAL MARKING
(MAINLINE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

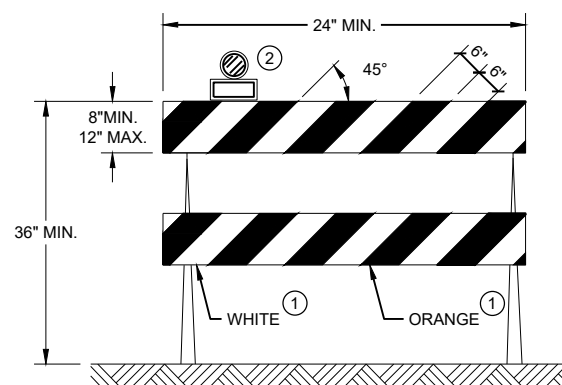
APPROVED
7/2018 /S/ Matthew R. Rauch
DATE STATE SIGNING AND MARKING ENGINEER
FHWA

**DRUM****42" CONE**

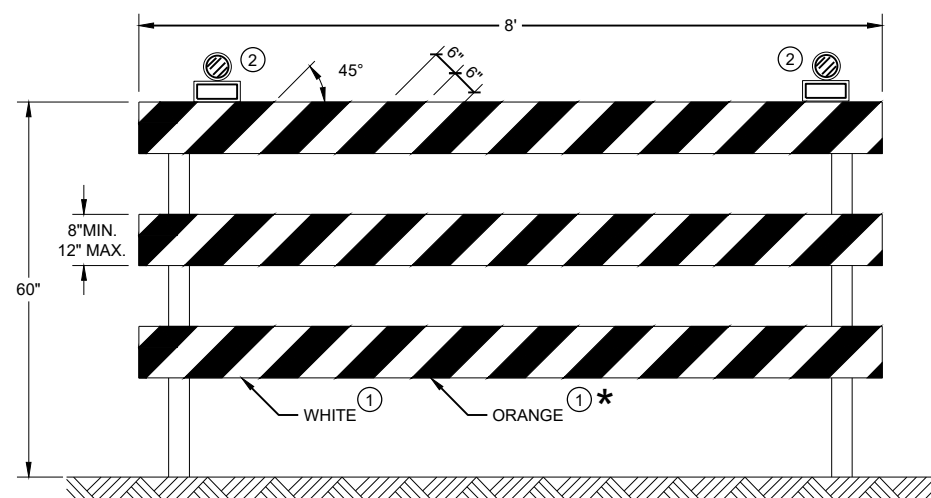
DO NOT USE IN TAPERS
½ SPACING OF DRUMS

**VERTICAL PANEL**

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.

**TYPE II BARRICADE**

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.

**TYPE III BARRICADE**

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.






**CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2017 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

-  SIGN ON PORTABLE OR PERMANENT SUPPORT
-  TEMPORARY PORTABLE RUMBLE STRIP ARRAY
-  DIRECTION OF TRAFFIC
-  WORK AREA
-  FLAGGER, EQUIPPED WITH STOP/SLOW PADDLE FASTENED ON SUPPORT STAFF

GENERAL NOTES

DETAILS OF TRAFFIC CONTROL DEVICES AND INSTALLATION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

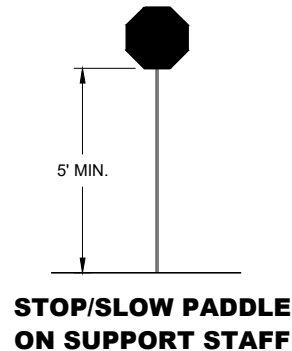
THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS, DEVICES, AND LOCATION OF ALL FLAGGERS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE FIRST ADVANCE WARNING SIGN SHOULD TYPICALLY BE LOCATED IN ADVANCE OF THE ANTICIPATED TRAFFIC BACKUP OR QUEUE.

WHEN A SIDE ROAD OR RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

FLAGGING

- FLAGGERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES. THEY SHALL BE EQUIPPED WITH STOP/SLOW PADDLES FASTENED ON SUPPORT STAFFS. WHEN THE FLAGGING OPERATION IS NOT IN EFFECT REMOVE TEMPORARY PORTABLE RUMBLE STRIPS PRIOR TO COVERING OR REMOVING ALL ADVANCE SIGNING.
- FOR MOVING WORK OPERATIONS, POST ADDITIONAL W20-7A FLAGGER SIGNS AT APPROXIMATELY 3,500' INTERVALS IN THE MOVING WORK OPERATION OR AS APPROVED BY THE ENGINEER.
 - SIGN NOT REQUIRED IF FLAGGING OPERATION OCCURS WITHIN A SIGNED ROAD WORK ZONE AREA.
- WHEN THE DISTANCE BETWEEN FLAGGERS EXCEEDS 2 MILES, A PILOT CAR IS REQUIRED. WHEN CURVES REDUCE SIGHT DISTANCE BELOW 400', A PILOT CAR IS REQUIRED.
- TEMPORARY PORTABLE RUMBLE STRIPS**
- UTILIZE TEMPORARY PORTABLE RUMBLE STRIPS ON ALL FLAGGING OPERATIONS.
- EACH TEMPORARY PORTABLE RUMBLE STRIP ARRAY CONSISTS OF THREE RUMBLE STRIPS SPACED ACCORDING TO MANUFACTURER'S RECOMMENDATION, PLACED TRANSVERSE ACROSS THE LANE AT LOCATIONS SHOWN.
- ONLY USE TEMPORARY PORTABLE RUMBLE STRIPS FOR THE APPROVED PRODUCTS LIST.
- INSTALL TEMPORARY RUMBLE STRIPS PER MANUFACTURER'S RECOMMENDATIONS.
- PLACE ADVANCE SIGNING PRIOR TO INSTALLING TEMPORARY RUMBLE STRIPS.
- DO NOT INSTALL TEMPORARY PORTABLE RUMBLE STRIPS ON GRAVEL, MILLED SURFACES, OR ASPHALT THAT HAS BEEN PAVED LESS THAN 12 HOURS.

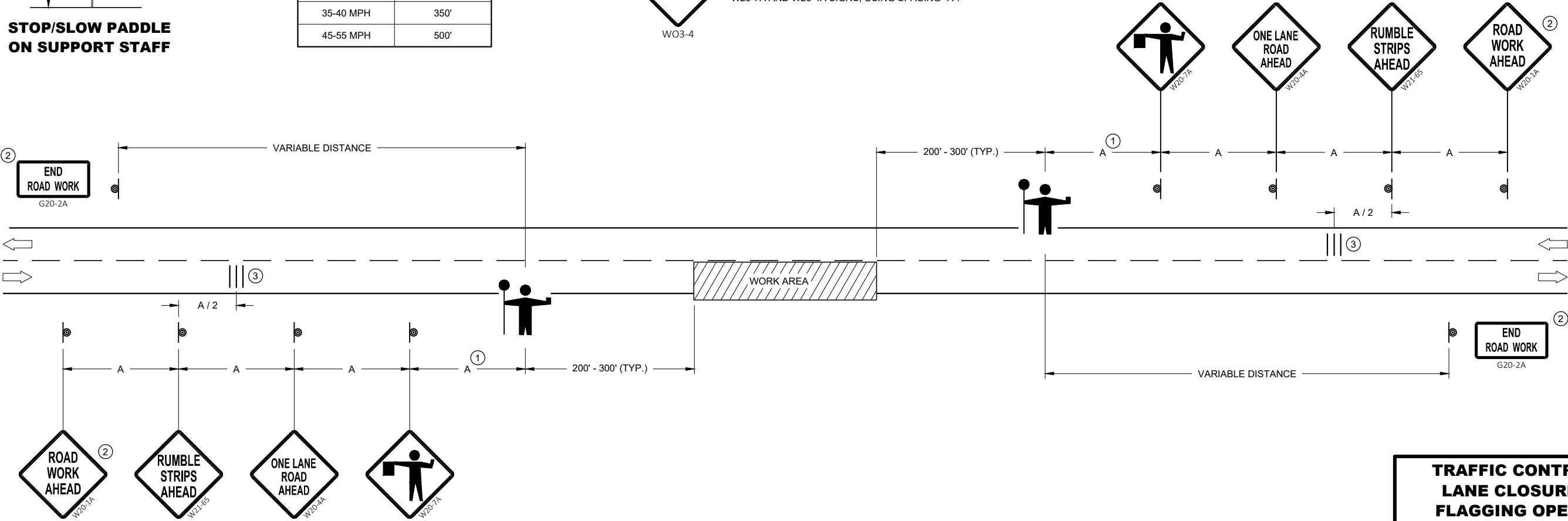


SIGN AND TEMPORARY RUMBLE STRIP ARRAY SPACING TABLE

SPEED LIMIT	SPACING "A"
25-30 MPH	200'
35-40 MPH	350'
45-55 MPH	500'



USE OF W03-4 SIGN IS OPTIONAL. WHEN USED, THIS SIGN SHALL BE LOCATED BETWEEN THE W20-7A AND W20-4A SIGNS, USING SPACING "A".



TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

TRAFFIC CONTROL FOR LANE CLOSURE WITH FLAGGING OPERATION

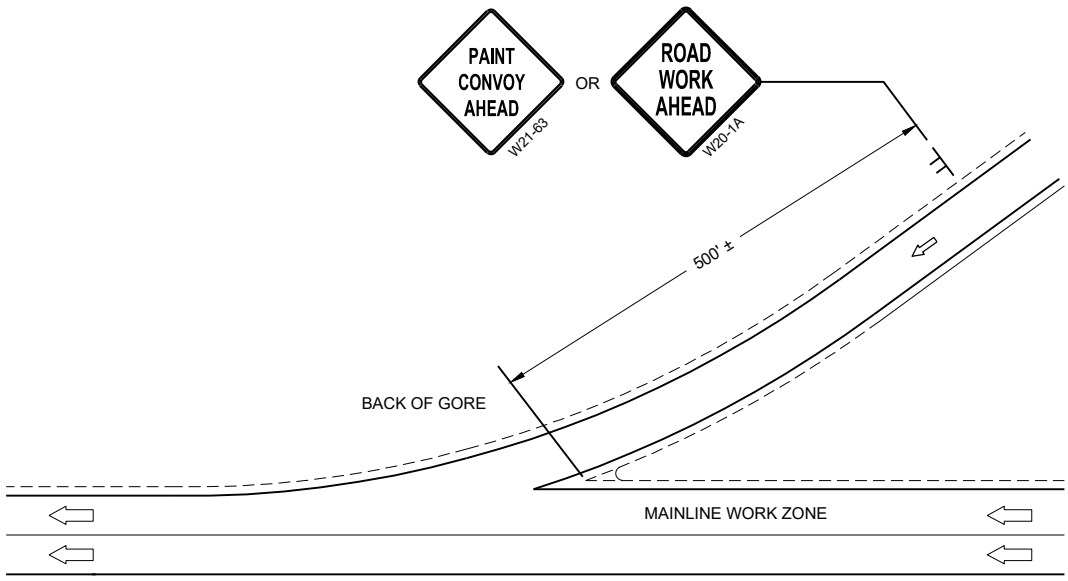
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- V1 MARKING VEHICLE
- V2 SHADOW VEHICLE
- V3 TRAIL VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW PANEL (MERGE)
- FLASHING ARROW PANEL (CAUTION)



GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE SPECIFIED.

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

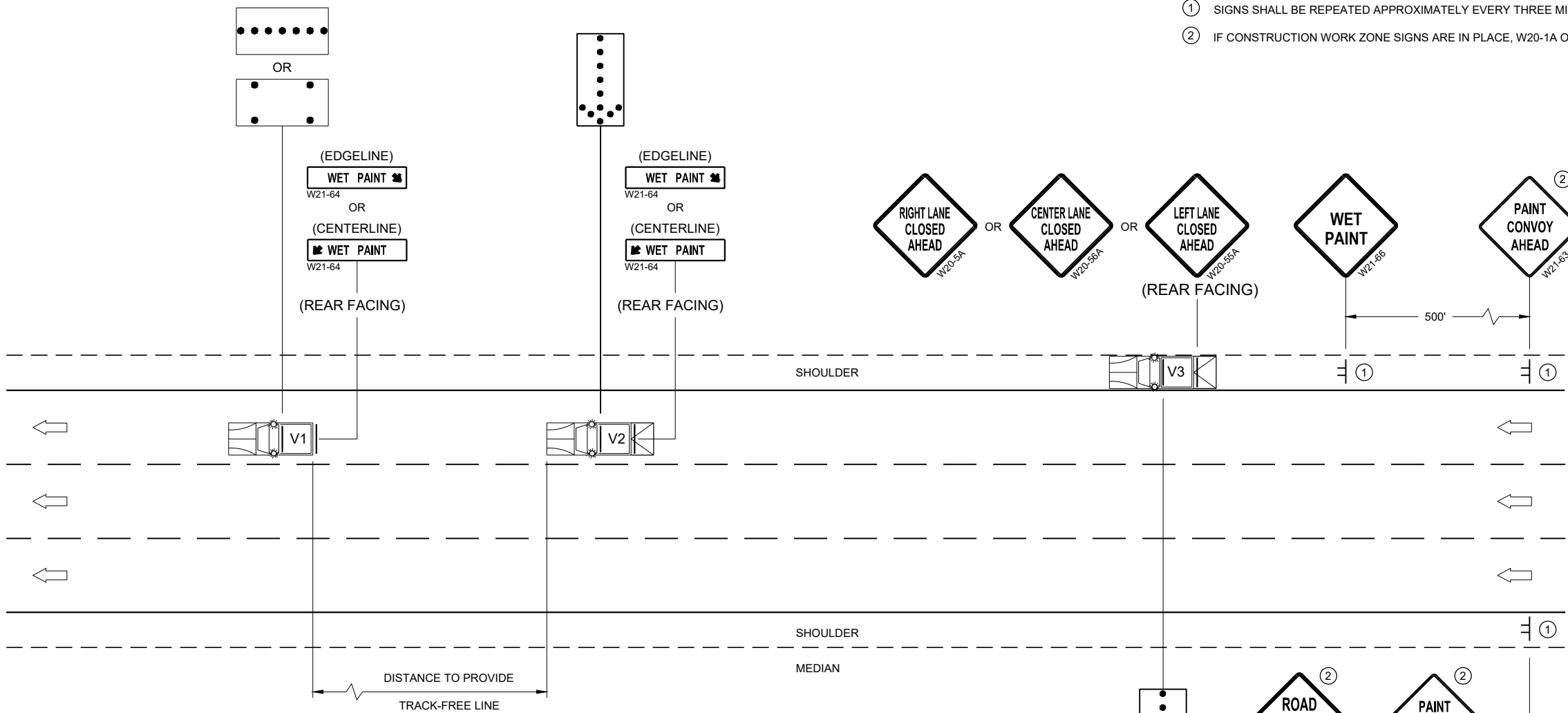
IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM HEIGHT OF 18" FOR WET PAVEMENT MARKINGS

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY ON RAMP.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



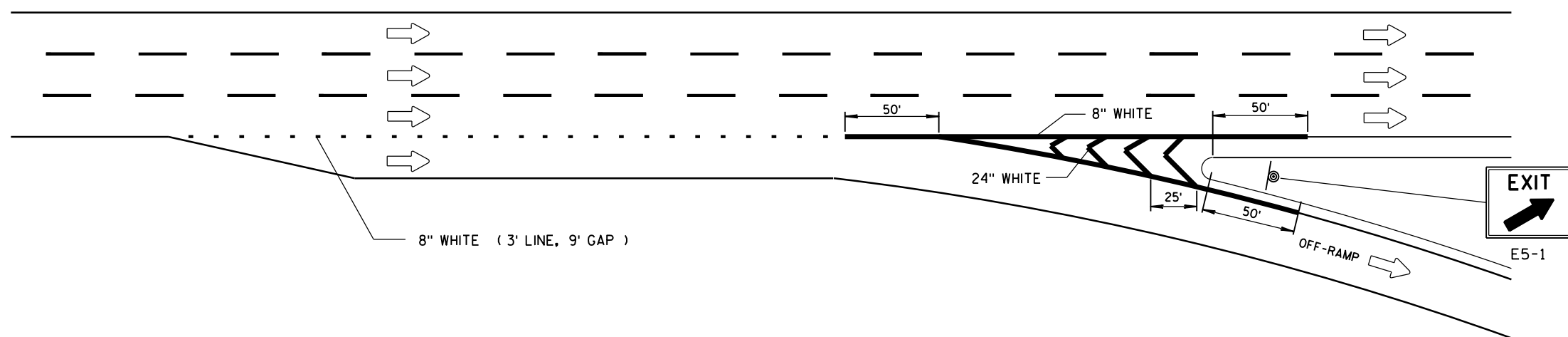
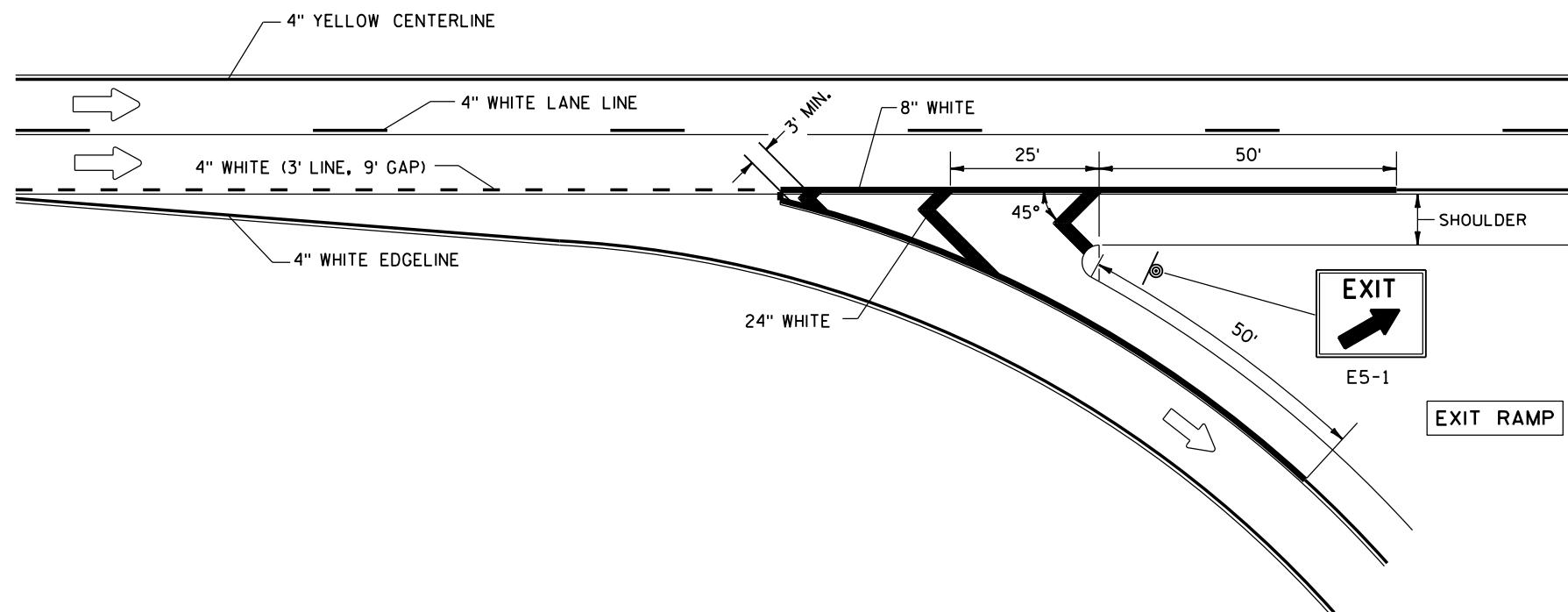
MOVING PAVEMENT MARKING OPERATIONS
MULTILANE DIVIDED ROADWAY

MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA



GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

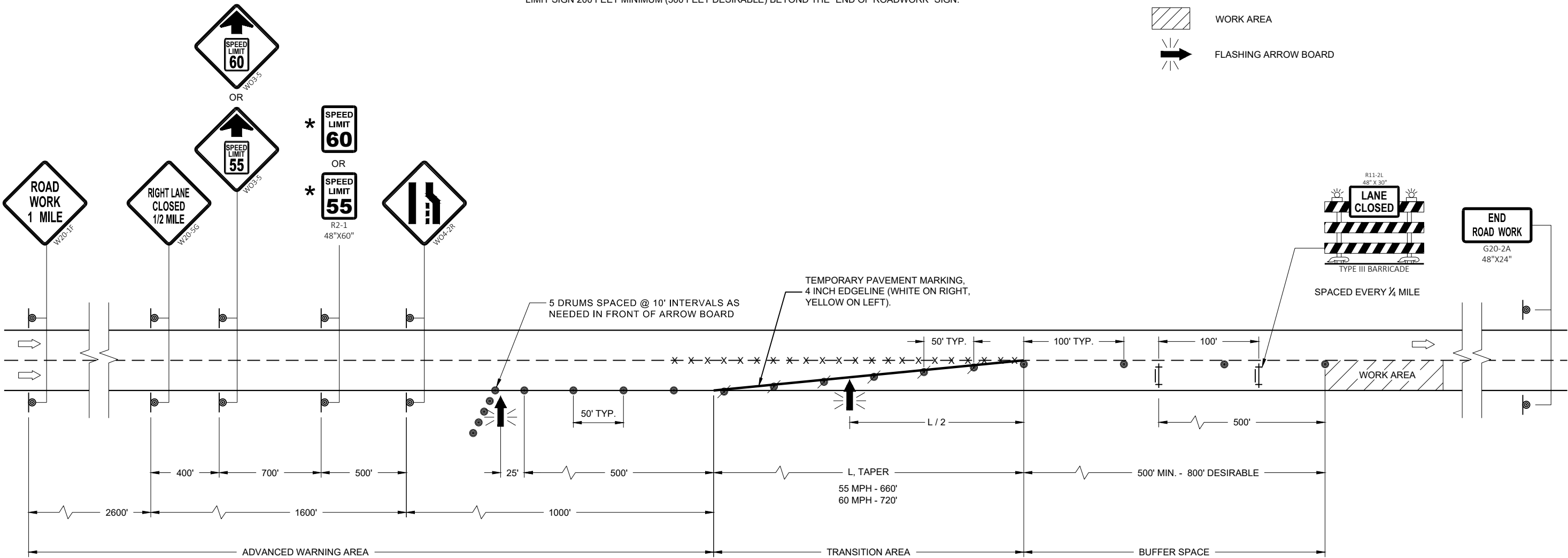
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

- TYPE III BARRICADE WITH ATTACHED SIGN
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TRAFFIC CONTROL DRUM
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD



TRAFFIC CONTROL,
LANE CLOSURE,
SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

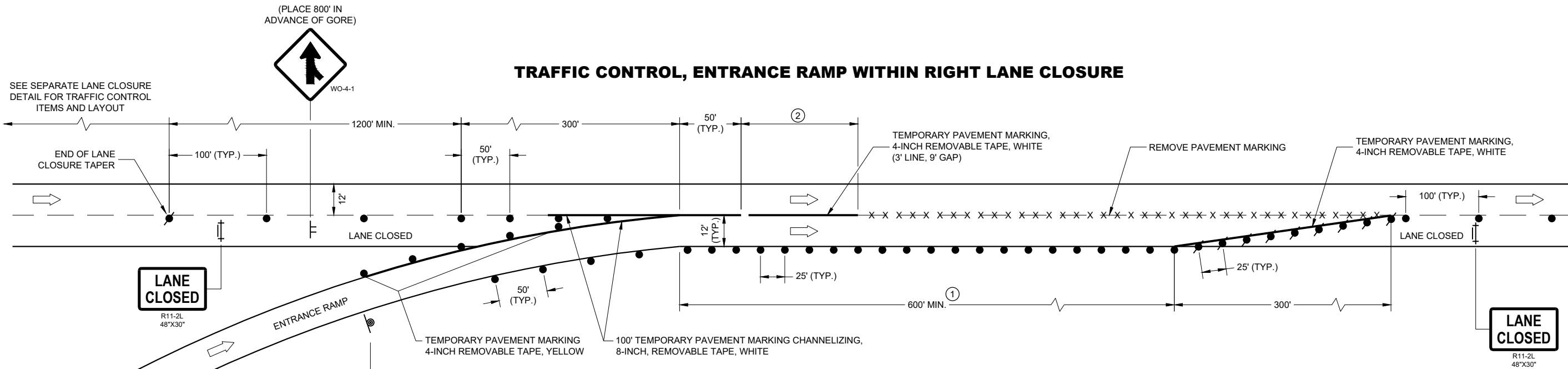
ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY MARKING AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.

TRAFFIC CONTROL, ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE



PARALLEL EXIT RAMP

TRAFFIC CONTROL,
PARALLEL ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- FLAGS, 16" X 16" MIN., ORANGE
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

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SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

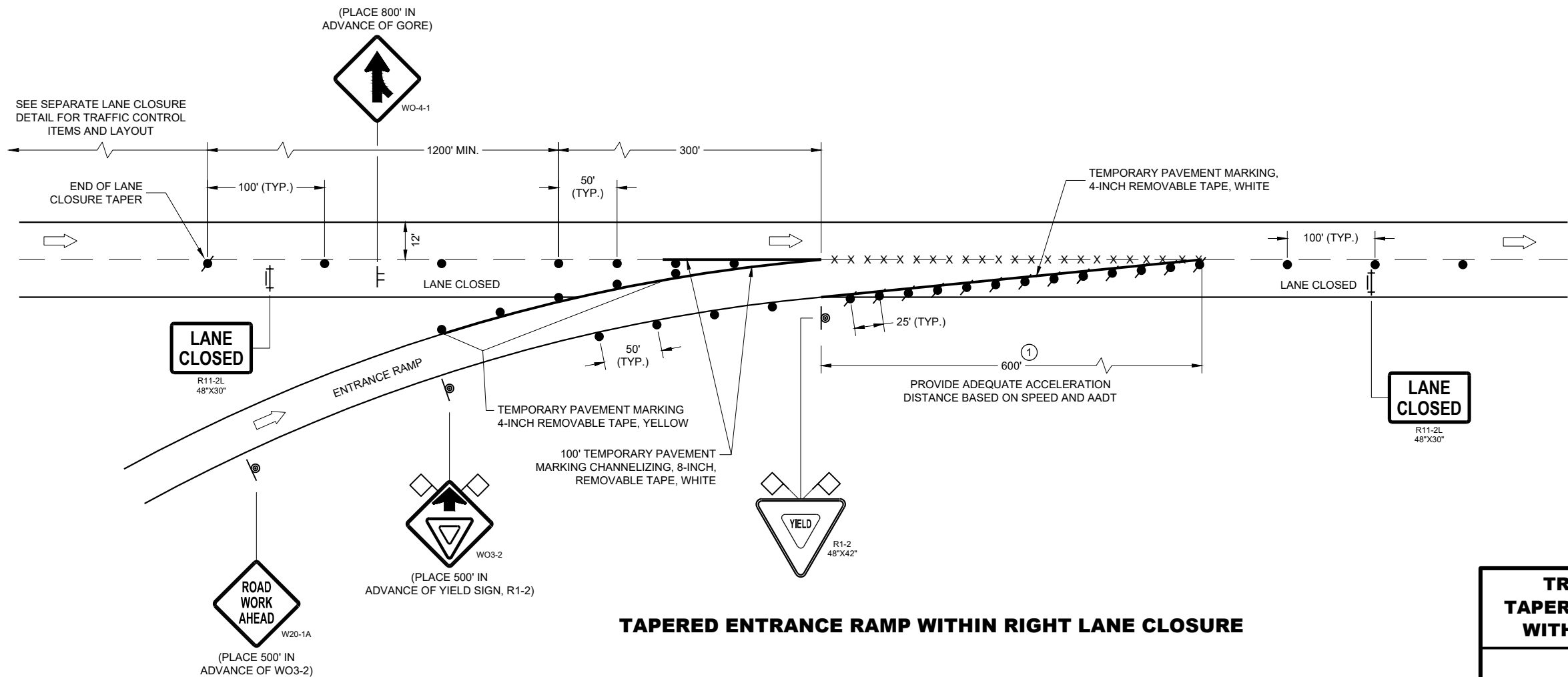
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

① CONSULT WITH REGIONAL WORK ZONE ENGINEER IF NEED TO REDUCE LENGTH EXISTS.



TAPERED ENTRANCE RAMP WITHIN RIGHT LANE CLOSURE

**TRAFFIC CONTROL,
TAPERED ENTRANCE RAMP
WITHIN LANE CLOSURE**






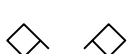

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  FLAGS, 16" X 16" MIN., ORANGE
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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YIELD SIGN AND WARNING SIGNS ON ENTRANCE RAMP ARE ALSO APPROPRIATE FOR CLOSURE OF THE MAINLINE LEFT LANE. OMIT THE YIELD SIGN IF MORE THAN ONE LANE REMAINS OPEN ON THE MAINLINE AND THE RAMP TAPER IS AT LEAST AS LONG AS THE NORMAL ENTRANCE RAMP TAPER AT THE SITE.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

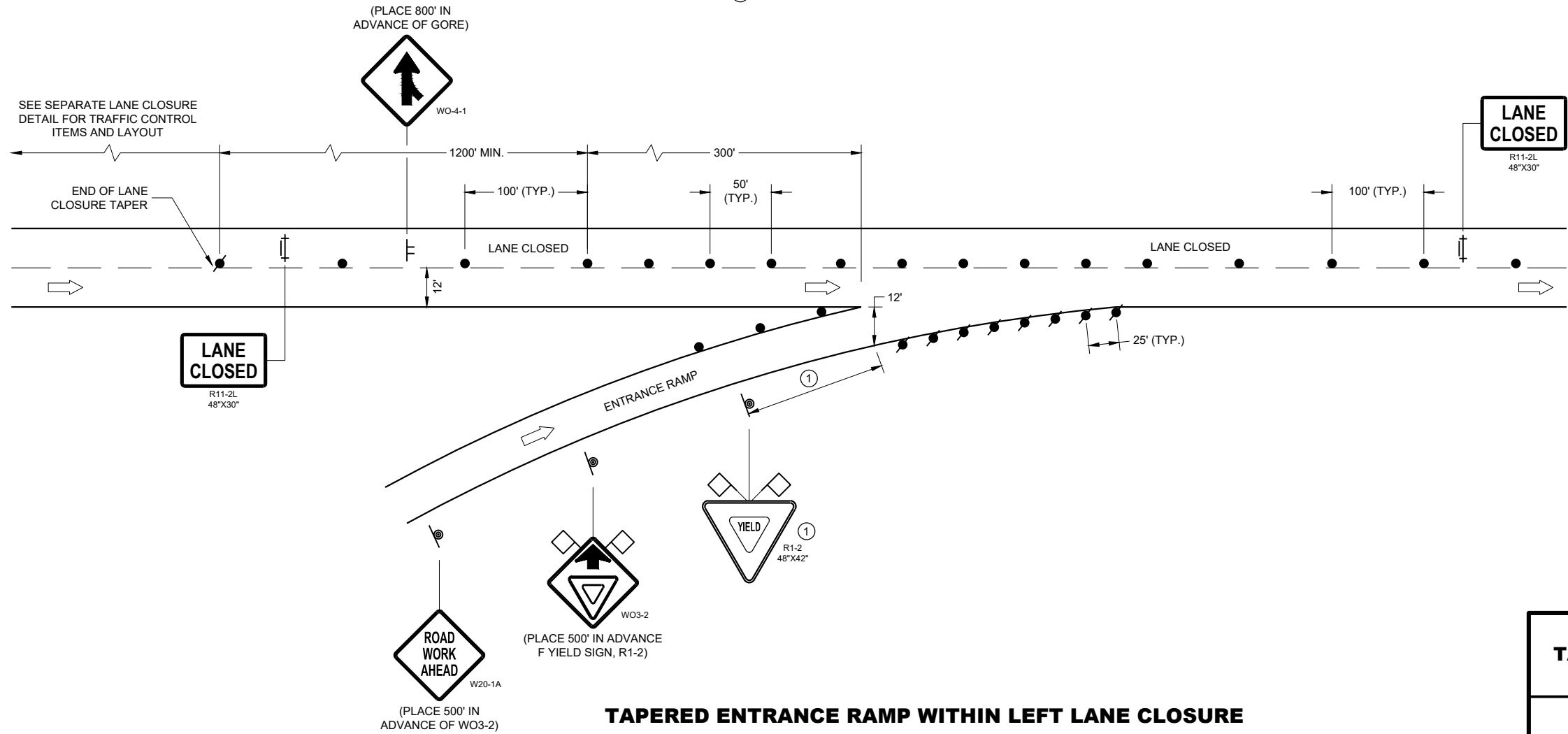
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.








- ① PLACE YIELD SIGN TO PROVIDE ADEQUATE SIGHT DISTANCE AND ACCELERATION DISTANCE.



TAPERED ENTRANCE RAMP WITHIN LEFT LANE CLOSURE

TRAFFIC CONTROL, TAPERED ENTRANCE RAMP WITHIN LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2019 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  SIGN ON TEMPORARY SUPPORT
-  TRAFFIC CONTROL DRUM
-  TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
-  REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
-  TYPE III BARRICADE WITH ATTACHED SIGN
-  DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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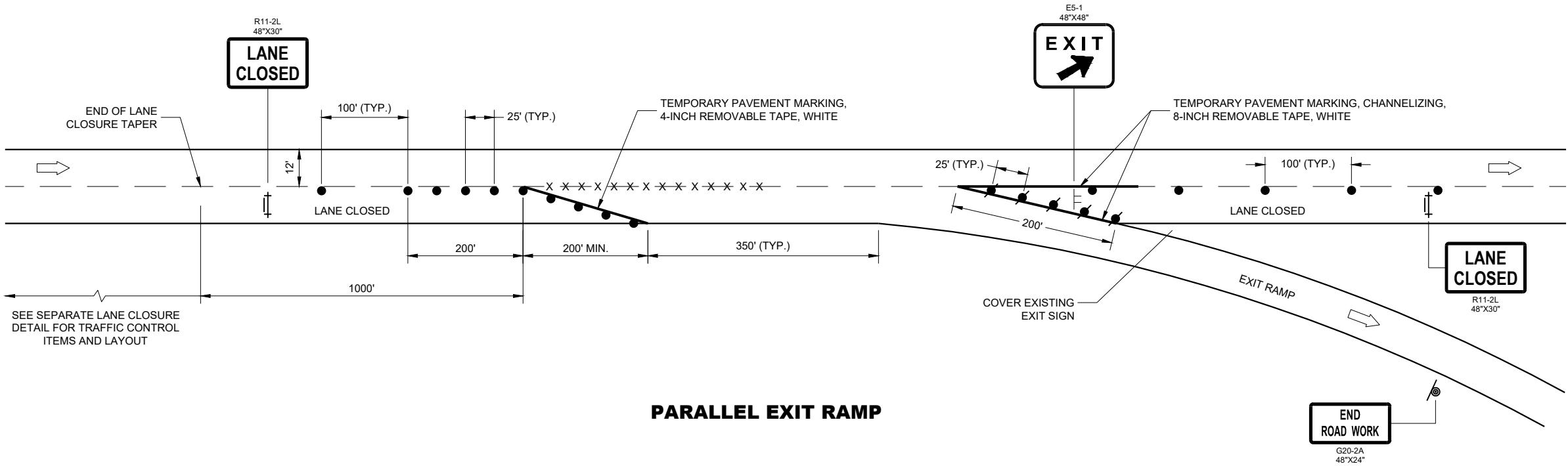
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.



TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER

FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

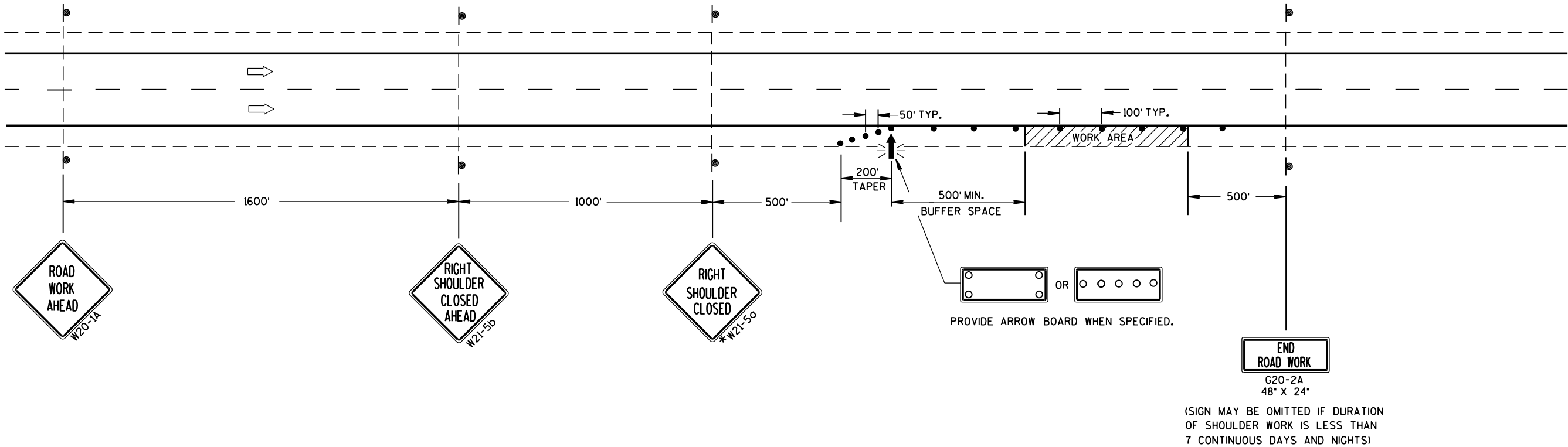
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

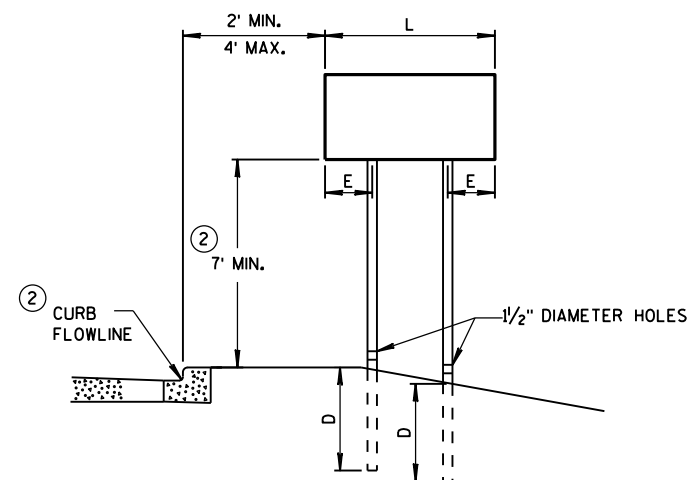
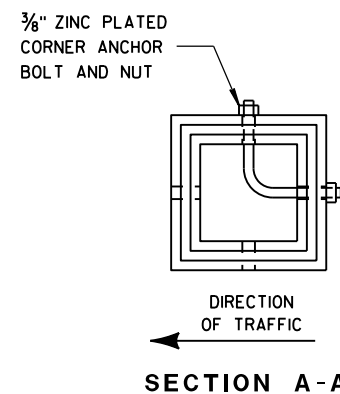
APPROVED
June 2016 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE TRAFFIC
FHWA SAFETY ENGINEER



TUBULAR STEEL POSTS

AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS LARGER THAN 27 SQ.FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.

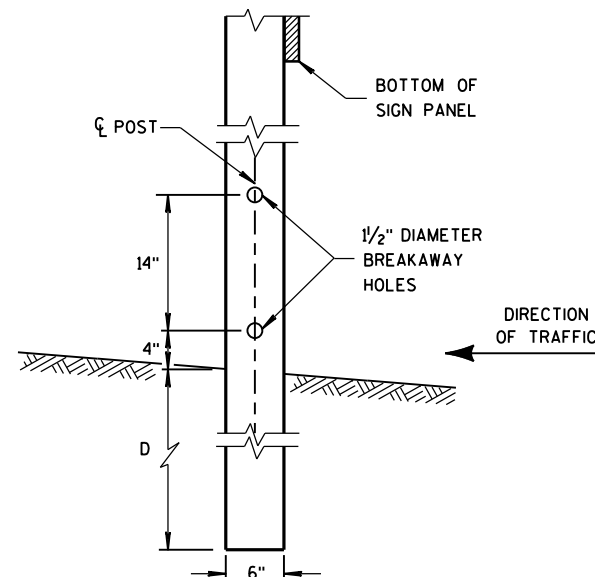


URBAN AREA

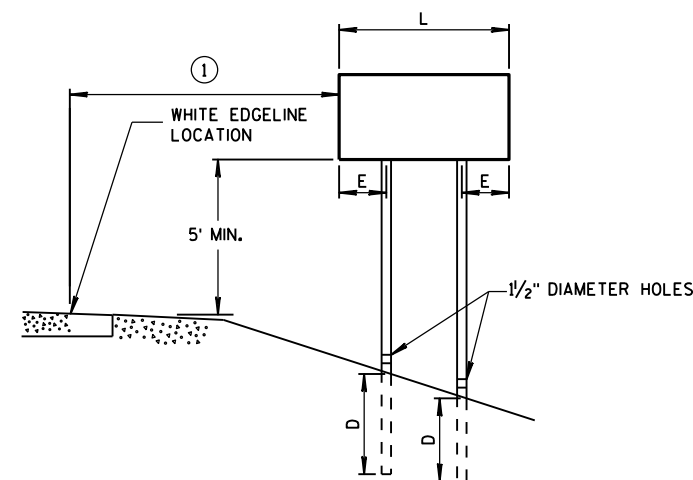
POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST
EMBEDMENT DEPTH

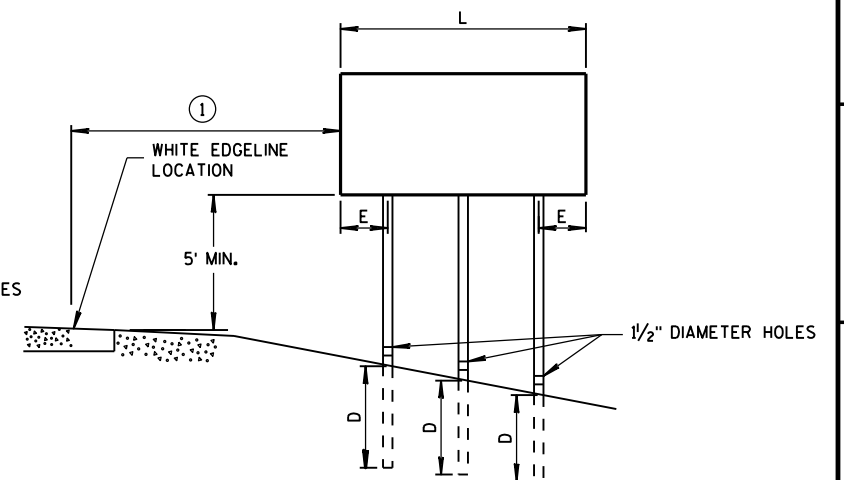
AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



4"x6" WOOD POST MODIFICATION



RURAL AREA



GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

4" X 6" WOOD POST

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

SEE NOTE (3)

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

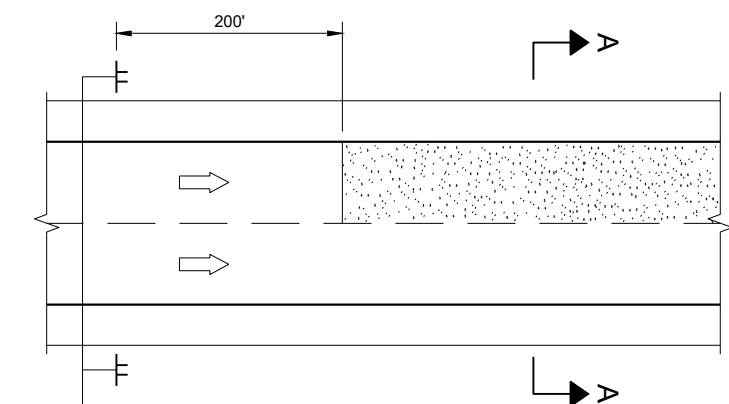
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - 3/8" x 3"
 - MACHINE BOLTS - 5/16" x 6-1/2" OR 7" LENGTH W/ NUTS

- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - 3/8" x 3-1/4" LENGTH W/ NUTS
 - RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH

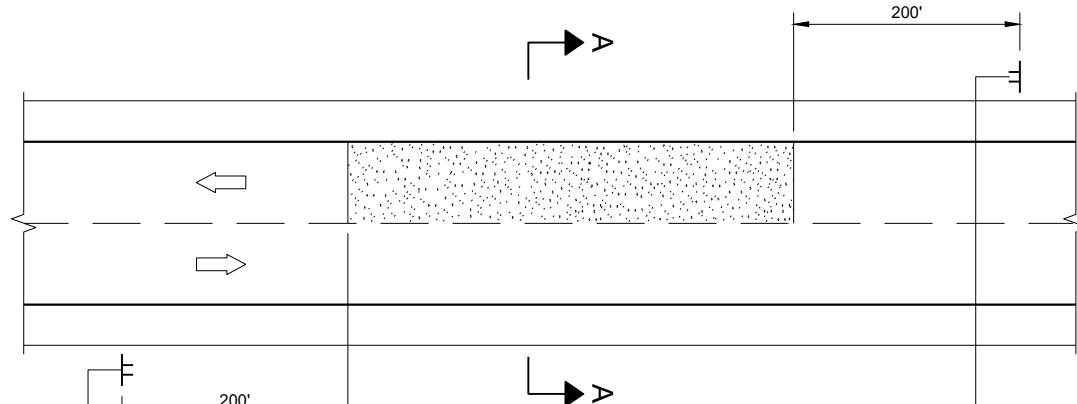
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 - 1-1/4" O.D. x 3/8" I.D. x .080 NYLON FOR ALL TYPE H SIGNS

* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

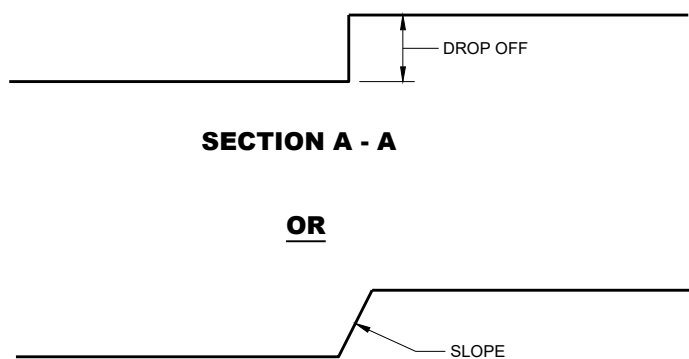
ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	



MULTI-LANE



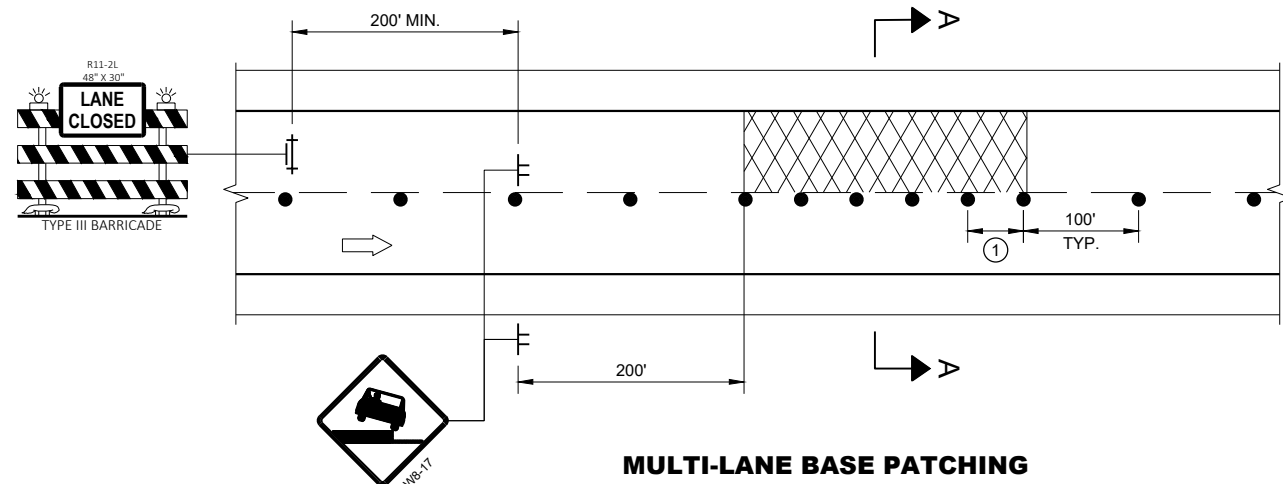
TWO-WAY TWO LANE



SECTION A - A

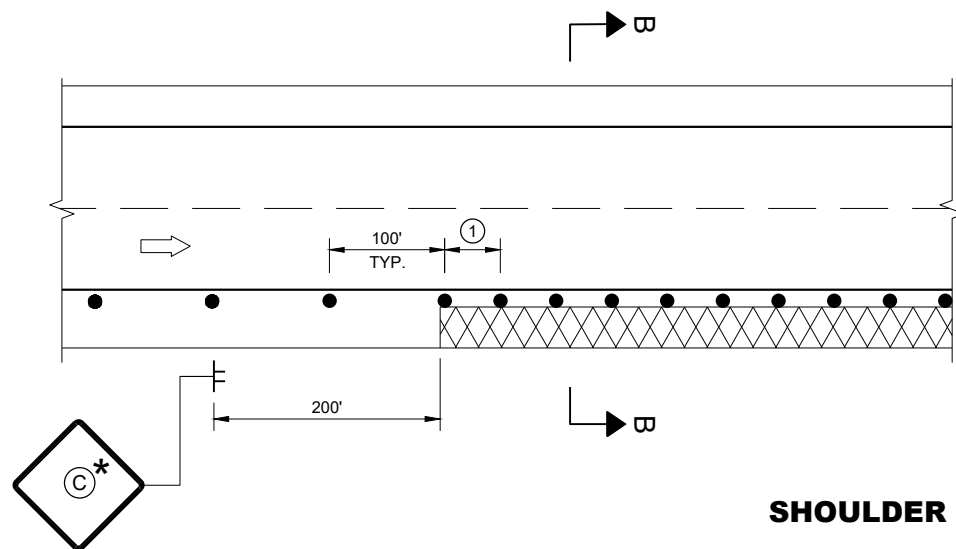
OR

SECTION A - A

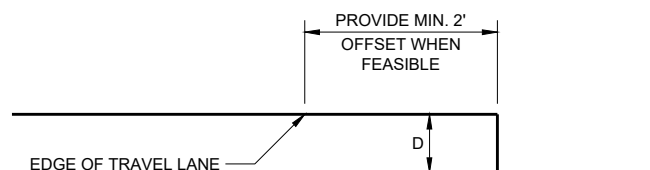


MULTI-LANE BASE PATCHING

ADJACENT LANE DROP-OFFS



SHOULDER DROP-OFFS



SECTION B - B

D	SIGN (C)
< 2" WITH A SLOPE STEEPER THAN 3:1	 WO8-9
2" < 6" WITH A SLOPE STEEPER THAN 3:1	 W8-9A PROVIDE A 3:1 OR FLATTER SLOPE OF MATERIAL ADJACENT TO THE PAVEMENT

GENERAL NOTES

FOR SPOT LOCATIONS USE ENGINEERING JUDGEMENT WHEN PLACING ADDITIONAL SIGNS.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

* IF THE DROP-OFF IS CONTINUOUS ALONG THE PROJECT, PLACE ADDITIONAL SIGNS EVERY 1 MILE AND AFTER EVERY ENTRANCE RAMP.

① USE CLOSER SPACING WHEN DELINEATING DROP-OFF.

LEGEND

- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- DIRECTION OF TRAFFIC
- WORK AREA WITH DROP-OFF
- MILLED SURFACE

**TRAFFIC CONTROL,
DROP-OFF SIGNING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

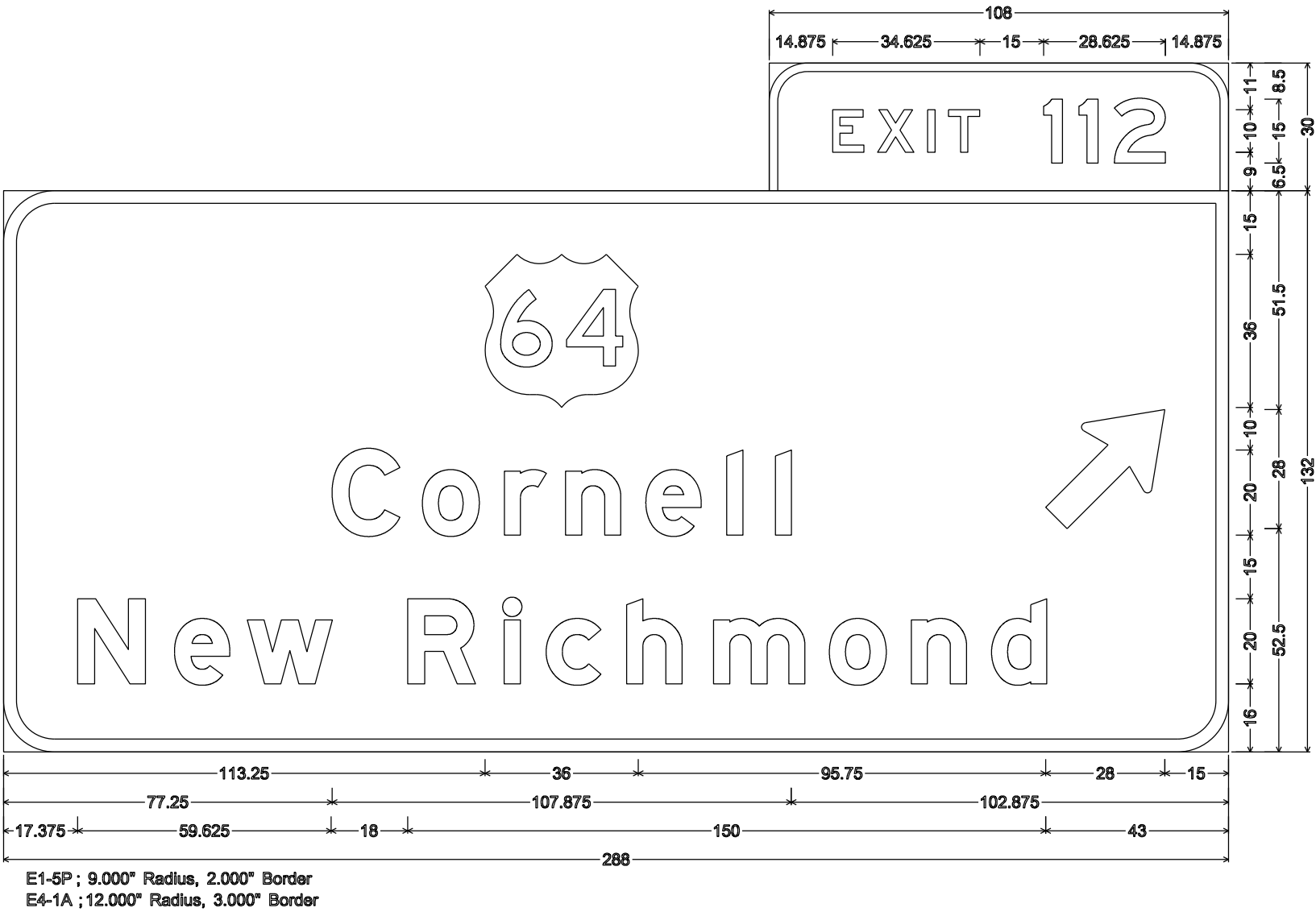
APPROVED
March 2018
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER

FHWA

NOTES

- 1. Sign is Type I - Type SH Reflective
- 2. Color:
Background - Green
Message - White
- 3. Message Series - E Modified except all
Cap Words Series E.



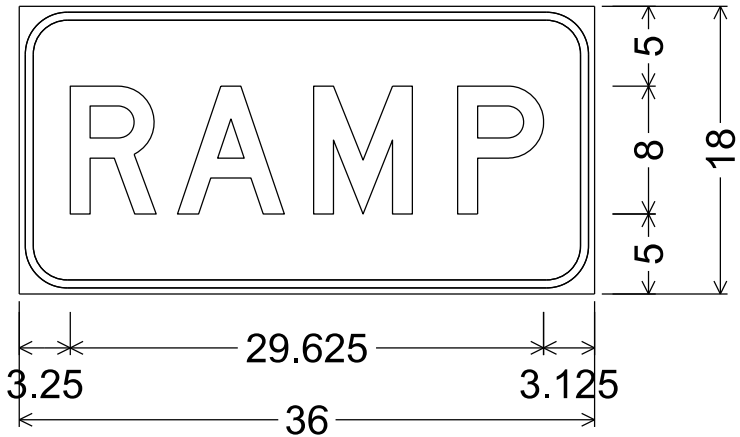
7

7

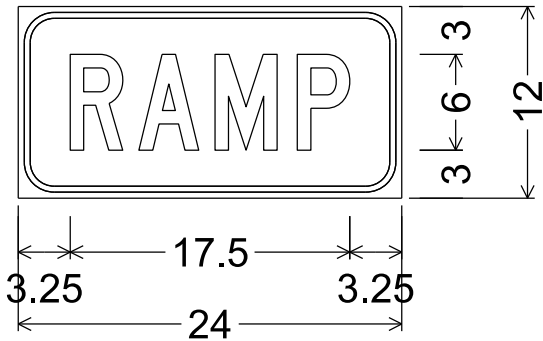
7

NOTES

- 1.Fixed Message Type II Signs - Type F Reflective
- 2. Color:
 - Background - Orange
 - Message - Black
- 3. Message Series - As noted

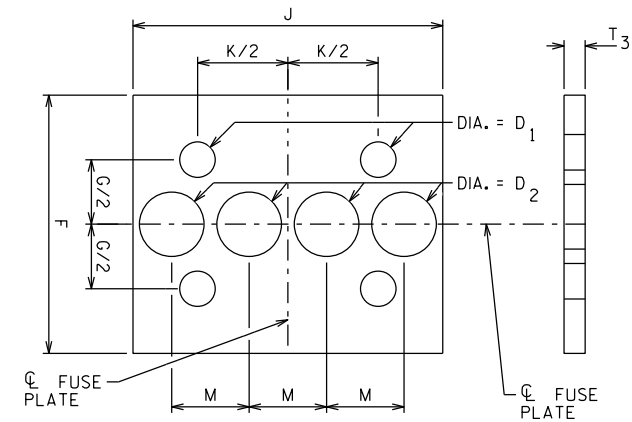


3.000" Radius, 0.500" Border, 0.375" Indent,
"RAMP", D



2.250" Radius, 0.375" Border, 0.375" Indent,
"RAMP", C

7



USE H.S. HEX HEAD BOLTS, HEX HEAD NUT AND FLAT WASHER UNDER NUT.
INSTALL BOLTS PER THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD
SPECIFICATION SECTION 506.3.12.3.

Technical drawing of a sign post assembly, showing side and end views with dimensions and labels.

Labels:

- EXIT NUMBER PANEL SUPPORT
- 1 1/4" DIA. HOLE FOR HANDLING
- SIGN FACE
- TOP OF POST & PRIMARY SIGN PANEL
- EXTRUDED ALUMINUM SIGN PANELS
- BOTTOM OF LOWEST SIGN PANEL
- POST LENGTH
- PLATE
- SEE TABLE ON SHEET 2 OF 2
- $F/2 + 1/2"$
- C. OF CUT AND FUSE PLATES
- POST ST
- 1 1/4" DIA. HOLE FOR HANDLING
- STUB LENGTH

Dimensions:

- $1 \frac{3}{4} H.$ (Vertical dimension from top of post to bottom of lowest sign panel)
- $F/2 + 1/2"$ (Vertical dimension from bottom of lowest sign panel to center of cut and fuse plates)
- POST LENGTH (Total vertical length of the post)
- STUB LENGTH (Vertical length of the stub section)

POST DETAIL



SECTION B-E



Technical drawing of a U-shaped part. The drawing shows a side view of a U-shaped component. The dimensions are as follows:

- Overall width: $1 \frac{3}{4}$ inches
- Overall height: $2 \frac{1}{4}$ inches
- Radius of the U-shape: $\frac{1}{8}$ inch (indicated by a dimension line from the center of the U-shape to the outer edge)
- Distance from the left edge to the center of the U-shape: $\frac{7}{8}$ inch
- Distance from the bottom edge to the center of the U-shape: $\frac{7}{8}$ inch
- Dimension $\frac{1}{16}$ inch D is indicated at the top left corner.

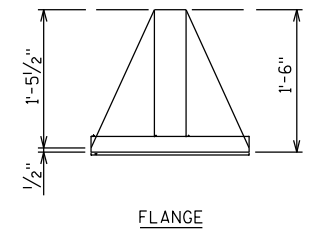
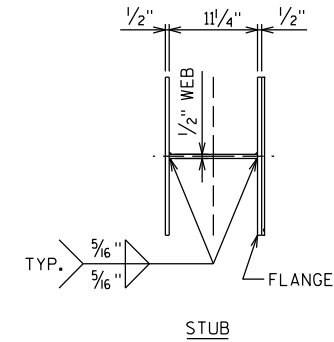
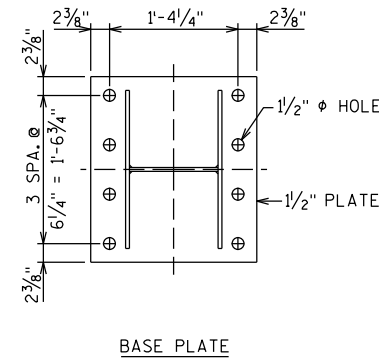
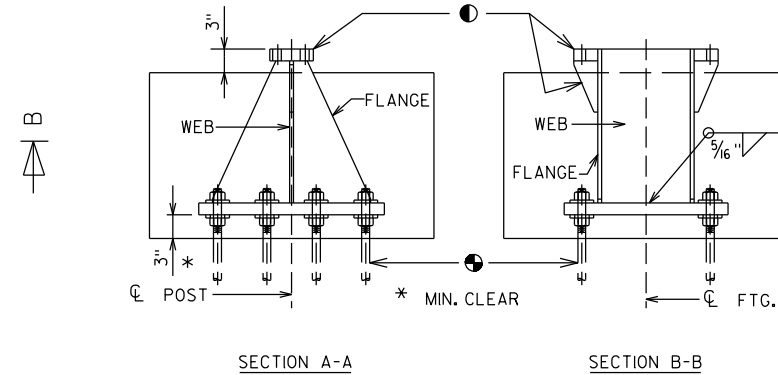
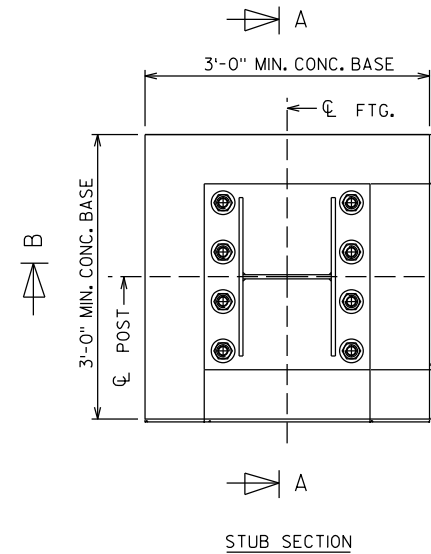
SHIM DETAIL

FURNISH TWO .012"± THICK AND TWO .032"± THICK SHIMS PER POST. SHIMS SHALL BE FABRICATED FROM BRASS SHIM STOCK OR STRIP CONFORMING TO ASTM B36.

BOLTING PROCEDURE FOR BASE CONNECTION

1. ASSEMBLE SIGN POST, BOLT KEEPER PLATE, AND STUB POST WITH BOLTS AND THREE FLAT WASHERS PER BOLT AS SHOWN.
2. SHIM AS REQUIRED TO PLUMB POST.
3. PRIOR TO BOLT TIGHTENING, LUBRICATE BASE CONNECTION BOLTS WITH BEESWAX OR OTHER HIGH-WAX LUBRICANT.
4. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE WITH A 12" OR 15" WRENCH TO BED WASHERS & SHIMS AND TO CLEAN BOLT THREADS.
5. LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PERSCRIBED TORQUE. (SEE TABLE FOR PERSCRIBED TORQUE). DO NOT OVER-TIGHTEN.
6. BURR THREADS AT JUNCTION WITH NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE BTO TYPE I SIGNS			
		DRAWN BY	PLANS CK'D.
CONNECTION & FOUNDATION DETAILS 1 OF 2		SHEET A3-1.20	



- SEE BASE CONNECTION DETAILS ON "CONNECTIONS & FOUNDATION DETAILS" SHEETS.
- ADHESIVE ANCHORS 1/4-INCHES. ALLOWABLE PULL OUT CAPACITY = 15 KIPS. EMBED 1'-3" INTO ROCK.

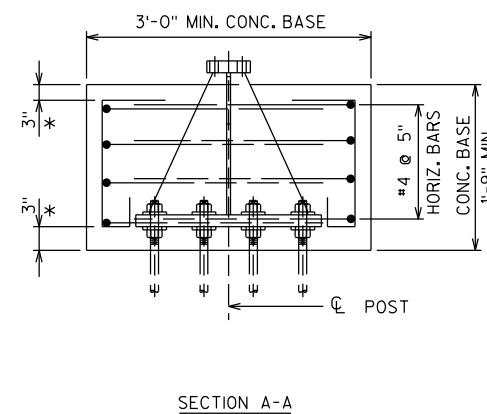
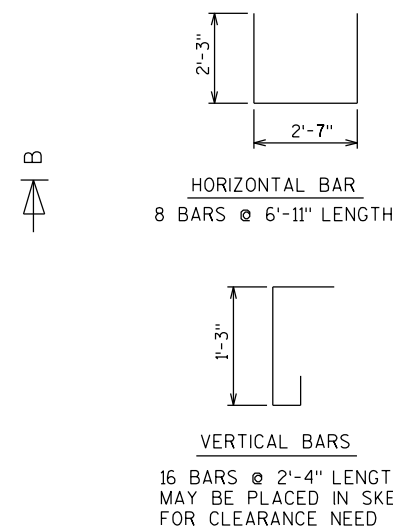
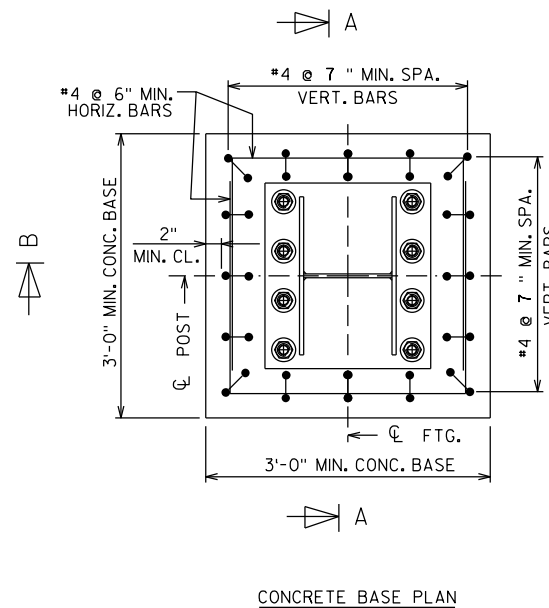
GENERAL NOTES:

QUANTITIES PER BASE:
 REINFORCING STEEL = 62 LB
 CONCRETE = 0.6 CY
 STRUCTURAL STEEL = 335 LB

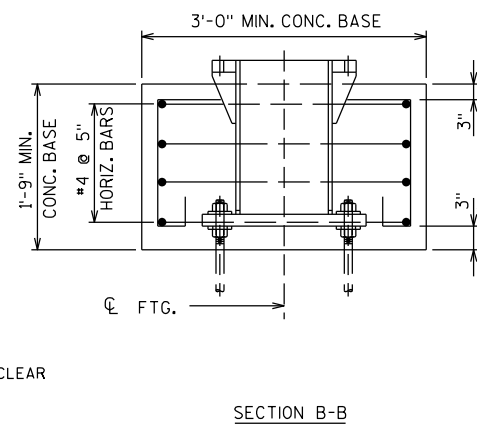
ALL MATERIALS, EXCEPT FOR ANCHOR ROD, NUTS, AND WASHERS, SHALL BE ASTM A709 GRADE 50. ALL MATERIALS TO BE GALVANIZED AFTER FABRICATION.

IF ROCK IS ENCOUNTERED PRIOR TO REACHING THE MINIMUM DRILLED SHAFT EMBEDMENT DEPTH DEFINED ON THE FOUNDATION DATA TABLE OF THE "CONNECTIONS & FOUNDATION DETAILS 2 OF 2" SHEET, THE CONTRACTOR SHALL INSTALL A TEST ADHESIVE ANCHOR AND DETERMINE THE PULL-OUT CAPACITY. IF THE FIELD TEST RESULTS IN A PULL-OUT CAPACITY GREATER THAN OR EQUAL TO 15 KIPS, THE CONTRACTOR MAY INSTALL THE ALTERNATE CONCRETE BASE AND BREAK-WAY STUB PER THE DETAILS ON THIS SHEET.

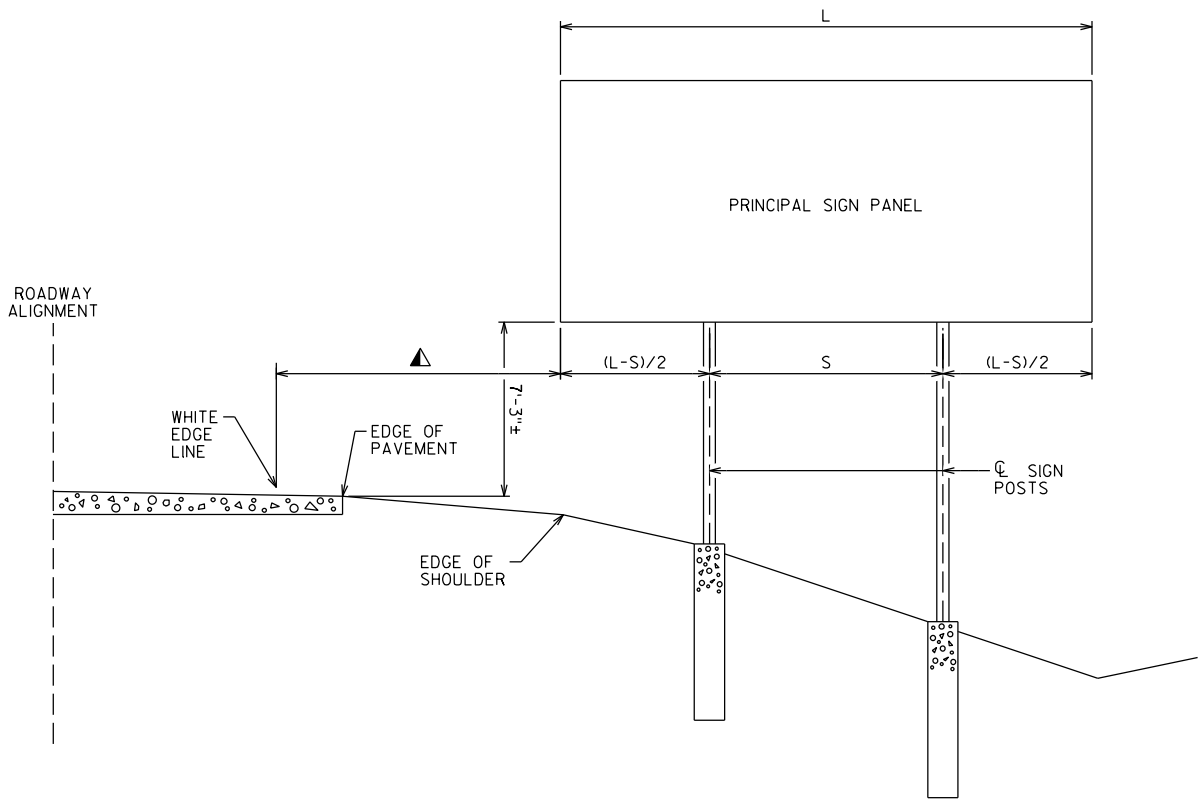
CONCRETE BASE DETAILS



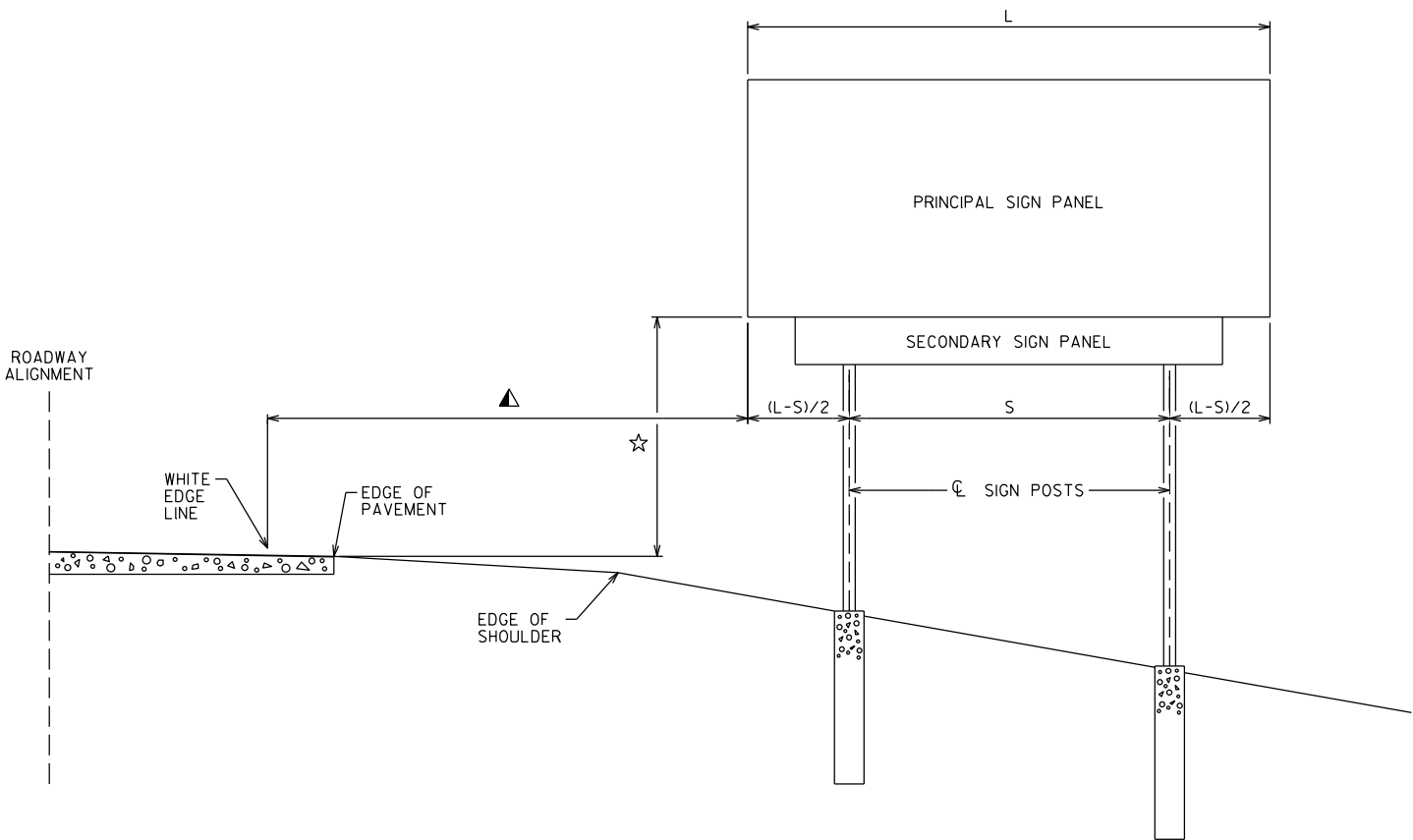
* MIN. CLEAR



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE BTO TYPE I SIGNS			
DRAWN BY		PLANS CK'D.	
ALTERNATE BREAK-AWAY BASE ON ROCK			SHEET A3-1M.2



INSTALLATION WITHOUT SECONDARY SIGN



INSTALLATION WITH SECONDARY SIGN

TYPE 1 SIGN INSTALLATION NOTES:

FOR A 2-POST INSTALLATION, "S" EQUALS $3L/5$, BUT SHALL NOT BE LESS THAN 6'-0".

FOR A 3-POST INSTALLATION, "S" EQUALS $5L/7$, BUT SHALL NOT BE LESS THAN 12'-0". THE SPACING BETWEEN ANY TWO POSTS SHALL NOT BE LESS THAN 6'-0".

UNLESS NOTED IN THE PLANS, THE SIGN OFFSET DISTANCE SHALL BE A MINIMUM OF 17'-6" FROM THE WHITE EDGE LINE, DESIRABLE 30'-0".

THE ± TOLERANCE SHOWN ON THIS SHEETS IS 3".

THE VERTICAL SIGN HEIGHT CLEARANCES SHOWN ON THIS SHEET ARE MEASURED FROM THE BOTTOM OF THE SIGN PANEL TO THE NEAR EDGE OF PAVEMENT.

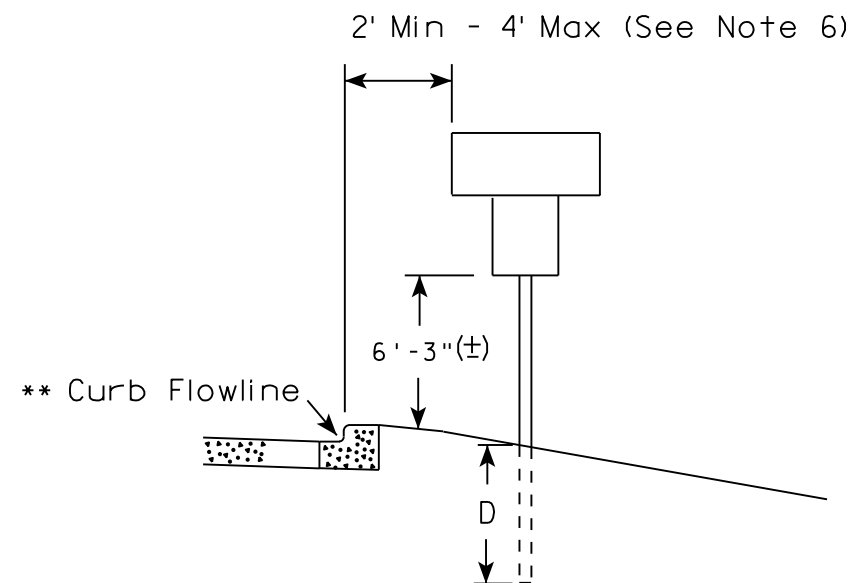
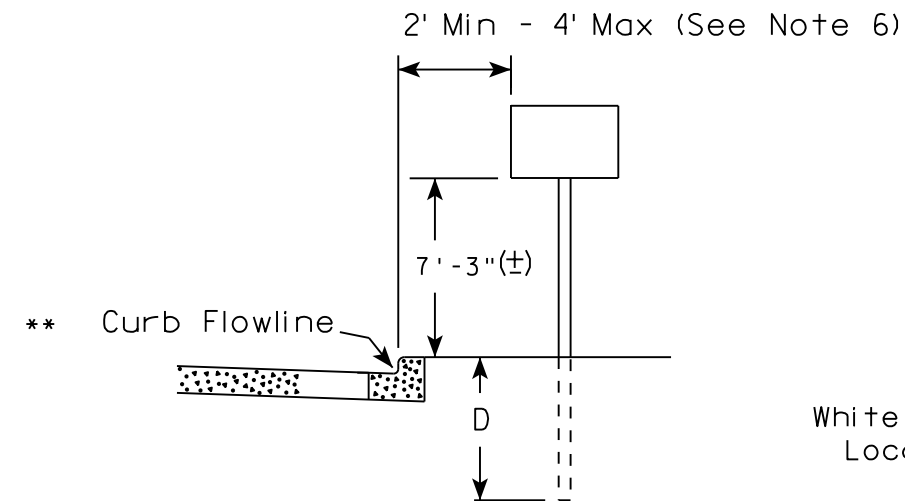
THE VERTICAL CLEARANCE SHALL BE 8'-3" ± WHEN THE SECONDARY SIGN HEIGHT IS 3'-0" OR LESS. FOR SECONDARY SIGN HEIGHTS LARGER THAN 3'-0", THE VERTICAL CLEARANCE TO THE BOTTOM OF THE SECONDARY SIGN PANEL SHALL BE 5'-3" ±.

POST LENGTHS SHOWN IN THE MISCELLANEOUS QUANTITIES ARE ESTIMATED LENGTHS. THE CONTRACTOR SHALL VERIFY POST LENGTHS AT THE TIME OF FINAL GRADING.

REFER TO THE TRAFFIC ENGINEERING OPERATIONS AND SAFETY MANUAL FOR FURTHER GUIDANCE ON MINIMUM VERTICAL CLEARANCE REQUIREMENTS.

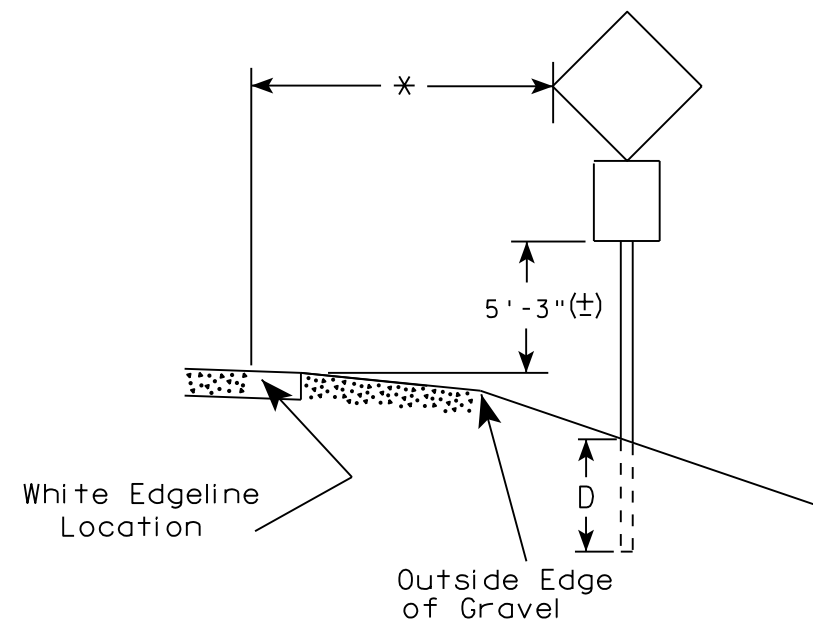
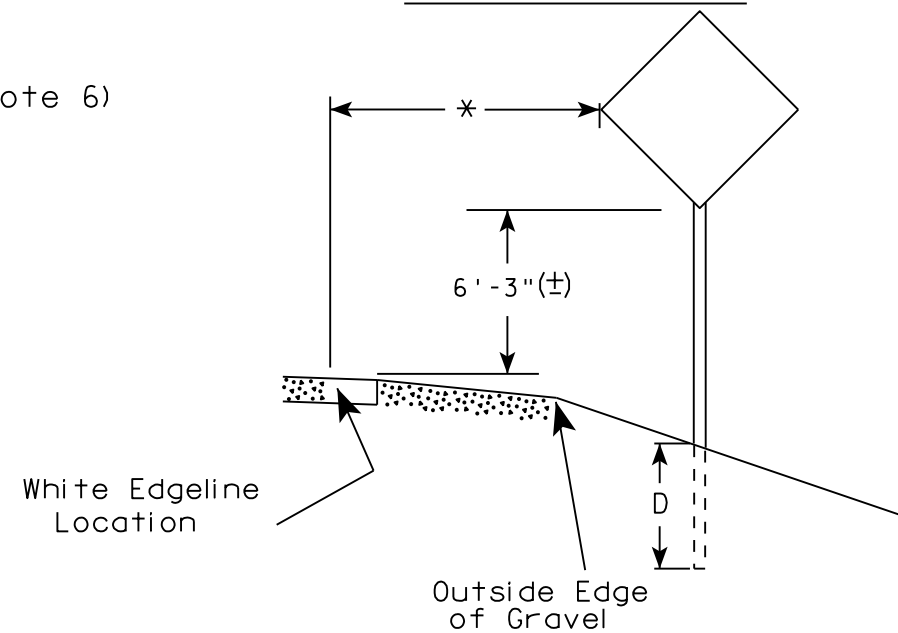
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE BTO TYPE 1 SIGNS			
		DRAWN BY	PLANS CK'D.
TYPICAL TYPE 1 SIGN INSTALLATION			SHEET A4-1.10

URBAN AREA



✱✱ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

RURAL AREA (See Note 2)



* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

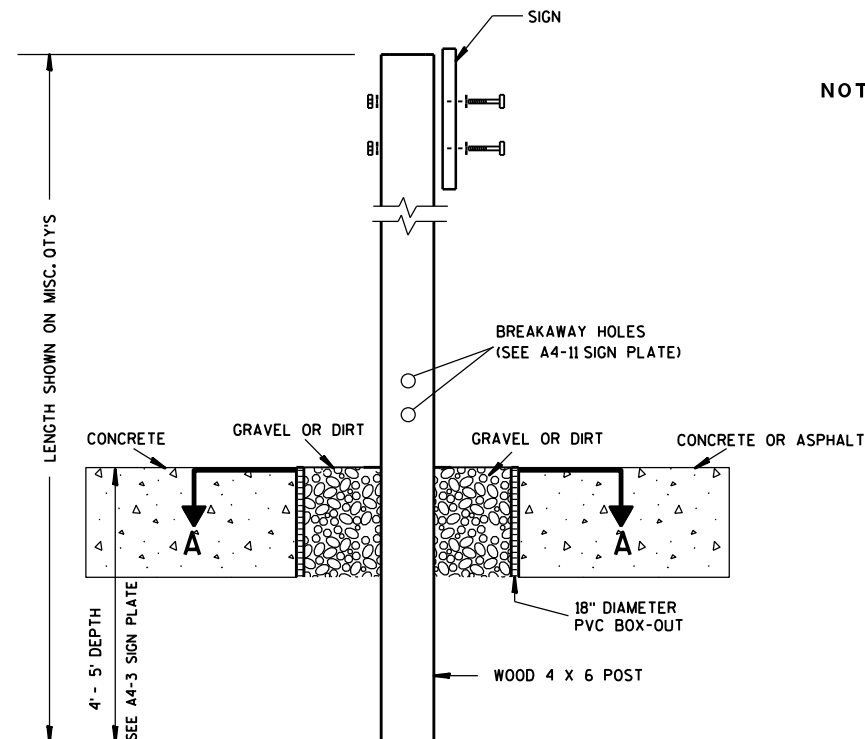
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on barrier wall, see A4-10 sign plate.
3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. J-Assemblies are considered to be one sign for mounting height.
5. Minimum mounting height for signs mounted on traffic signal poles is 5'-3" (±).
6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
7. The (±) tolerance for mounting height is 3 inches.
8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

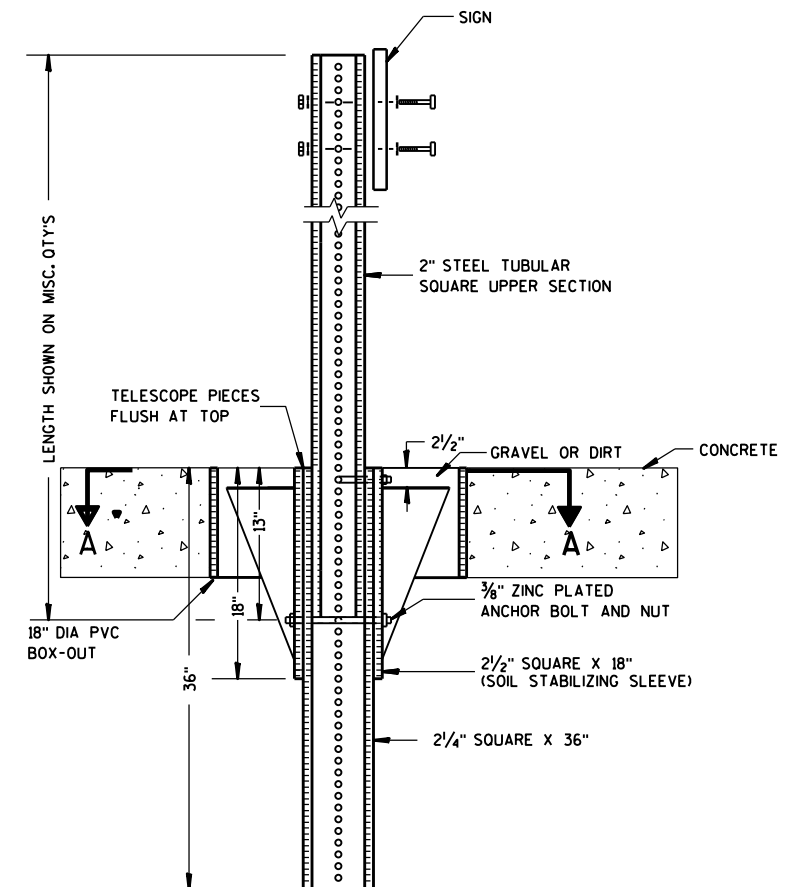
DATE 8/21/17 PLATE NO. A4-3.21



ELEVATION VIEW

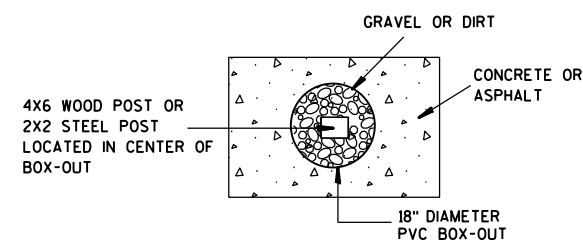
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

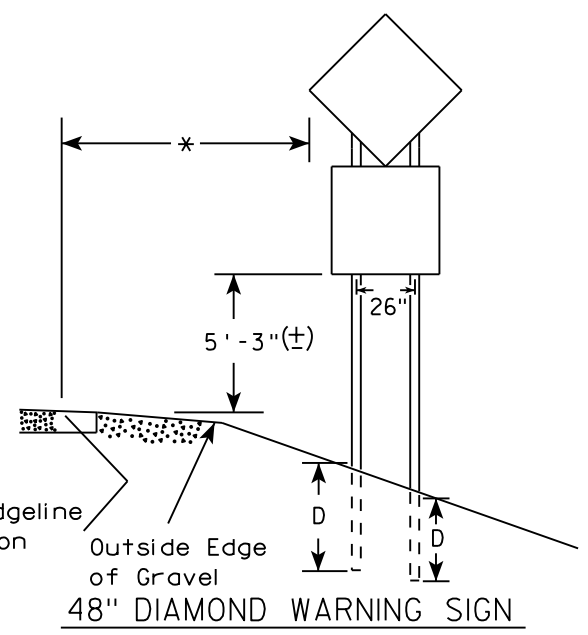
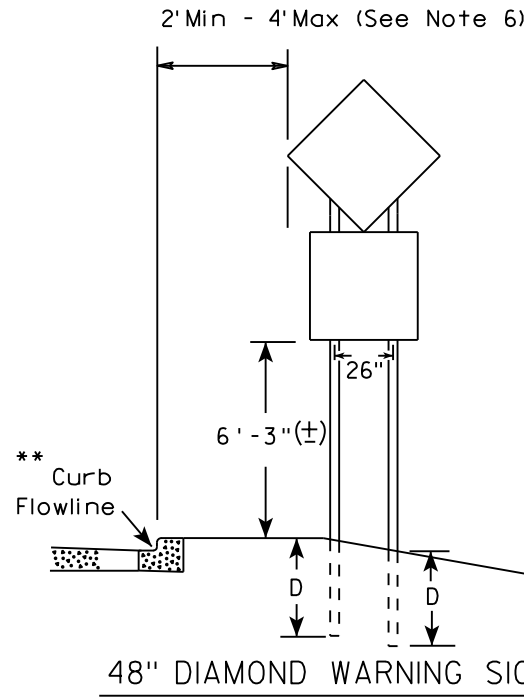
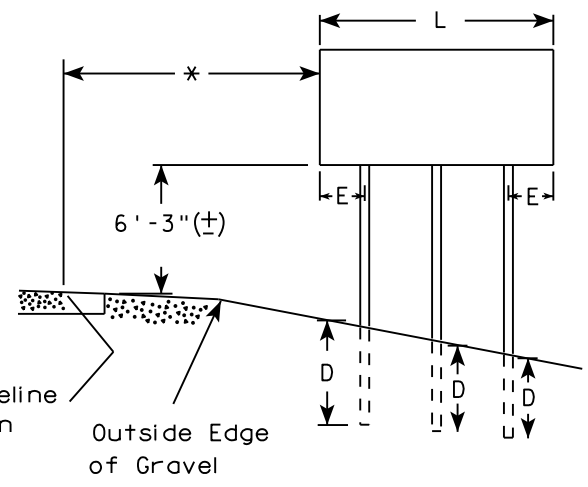
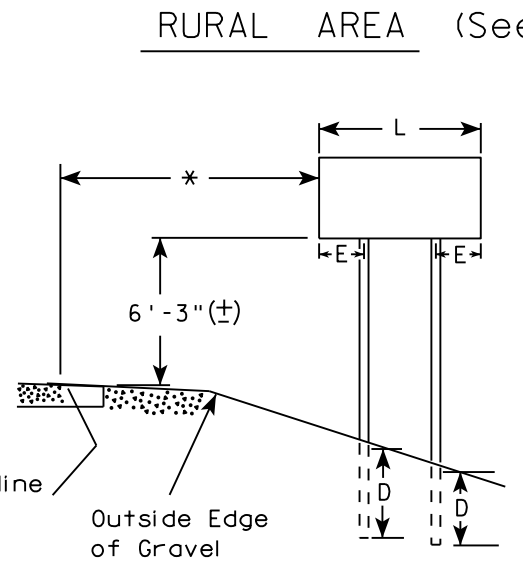
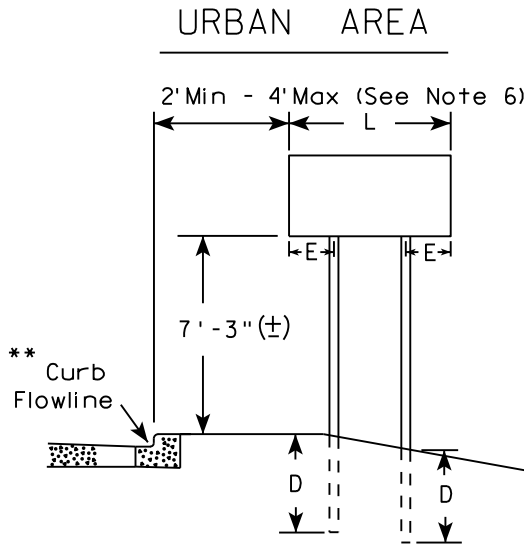
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4"-3" (±).

* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

*** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

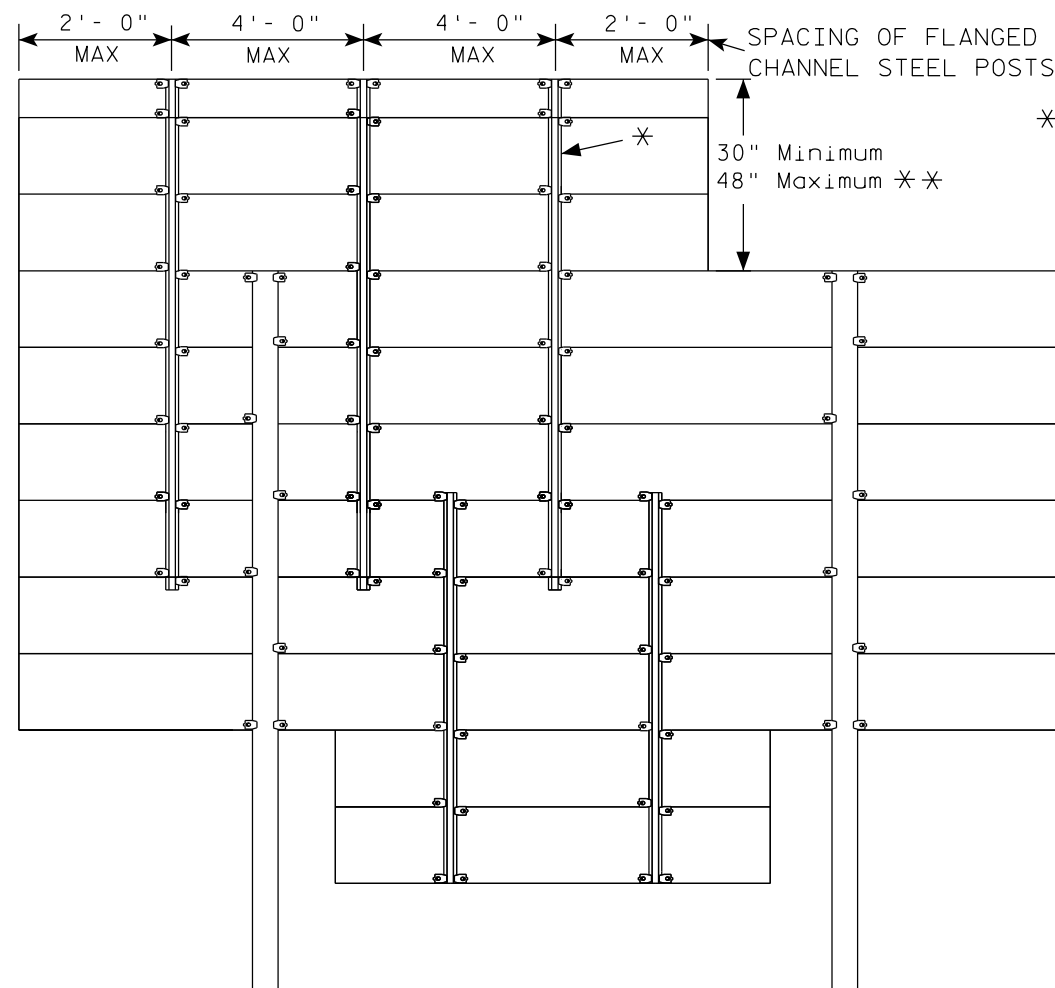
TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

GROUND MOUNTED SIGN



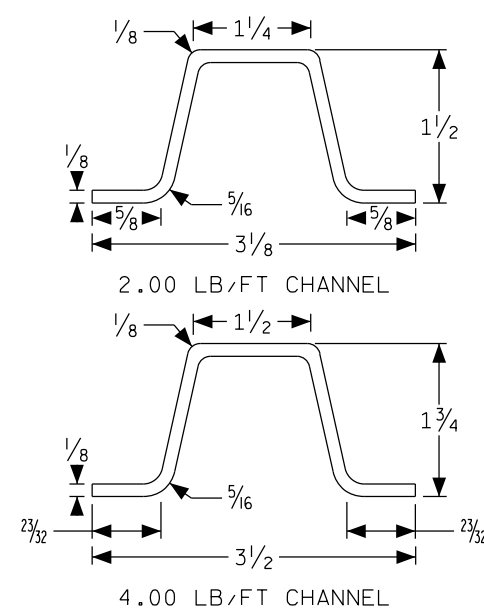
* = 2.00 lb/ft AND 4.00 lb/ft FLANGED CHANNEL, MIN. YIELD STRENGTH = 60,000 PSI (GRADE 60) GALVANIZED

* * = FOR 48" HEIGHT PANELS ON OVERHEAD STRUCTURES, ENTIRE SIGN SHALL BE CENTERED VERTICALLY ABOUT THE DEPTH OF THE TRUSS.

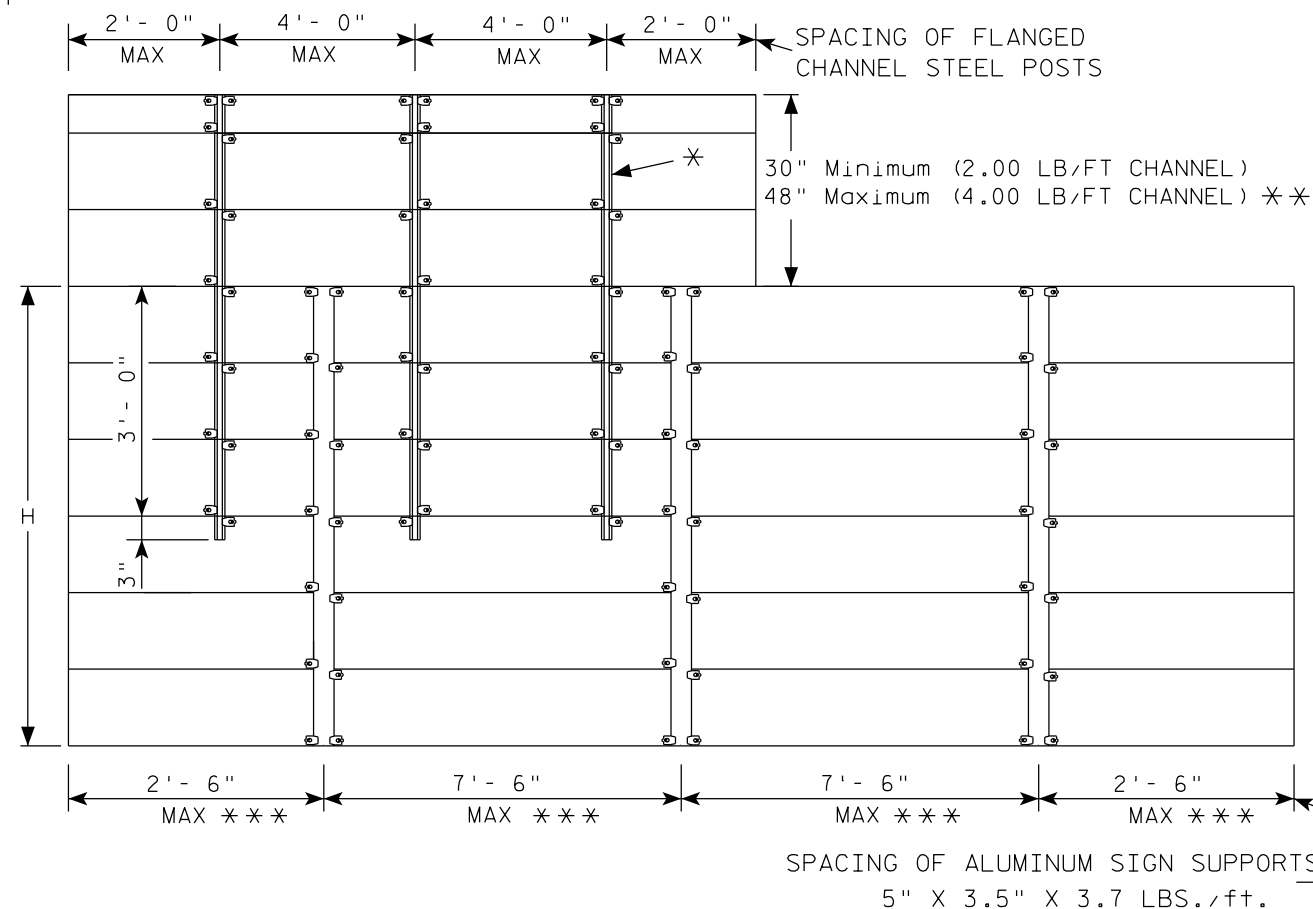
* * * THESE SPACING DISTANCES SHALL ONLY BE USED WHEN THE MAIN SIGN HAS A MAXIMUM HEIGHT (DIMENSION H) OF 15 FT OR LESS. FOR SIGNS WITH A HEIGHT OF GREATER THAN 15 FT, STRUCTURAL CALCULATIONS SHALL BE PERFORMED.

FLANGE CHANNEL DETAILS

NOT TO SCALE



SIGN BRIDGE MOUNTED SIGN



GENERAL NOTES

1. Flanged channel steel posts shall conform to size and material above, and shall be considered as incidental to other items in the contract.
2. Number of Flanged channel steel supports varies with length of panel and shall be spaced as shown:
 PANEL LENGTH 8'-0" OR LESS = 2 CHANNELS
 PANEL LENGTH 9'-0" - 12'-0" = 3 CHANNELS
 PANEL LENGTH 13'-0" OR MORE = 4 CHANNELS
 If the flanged channel steel posts can not be horizontally spaced as shown, they can be moved so as to securely hold the sign.

3. The EXIT NUMBER PANEL shall normally be positioned above the guide sign aligned with the right edge of the guide sign. If the guide sign indicates a left exit, the EXIT NUMBER PANEL shall be aligned with the left edge of the guide sign.
4. If the bolt holes in the top panel (EXIT NUMBER), or sub panel (NEXT EXIT) line up with holes in main sign panel, stitch bolts shall be used in addition to the channels.
5. Provide post clips for each sign as shown. (Please note the differences between a ground mounted versus Sign bridge mounted sign as far as number of clips required on the main supports or beams)
6. Structural steel sign supports shall extend to the top of the main signs, as shown on the above details.

ATTACHMENT OF GUIDE SIGNS TO SUPPORTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
 for State Traffic Engineer

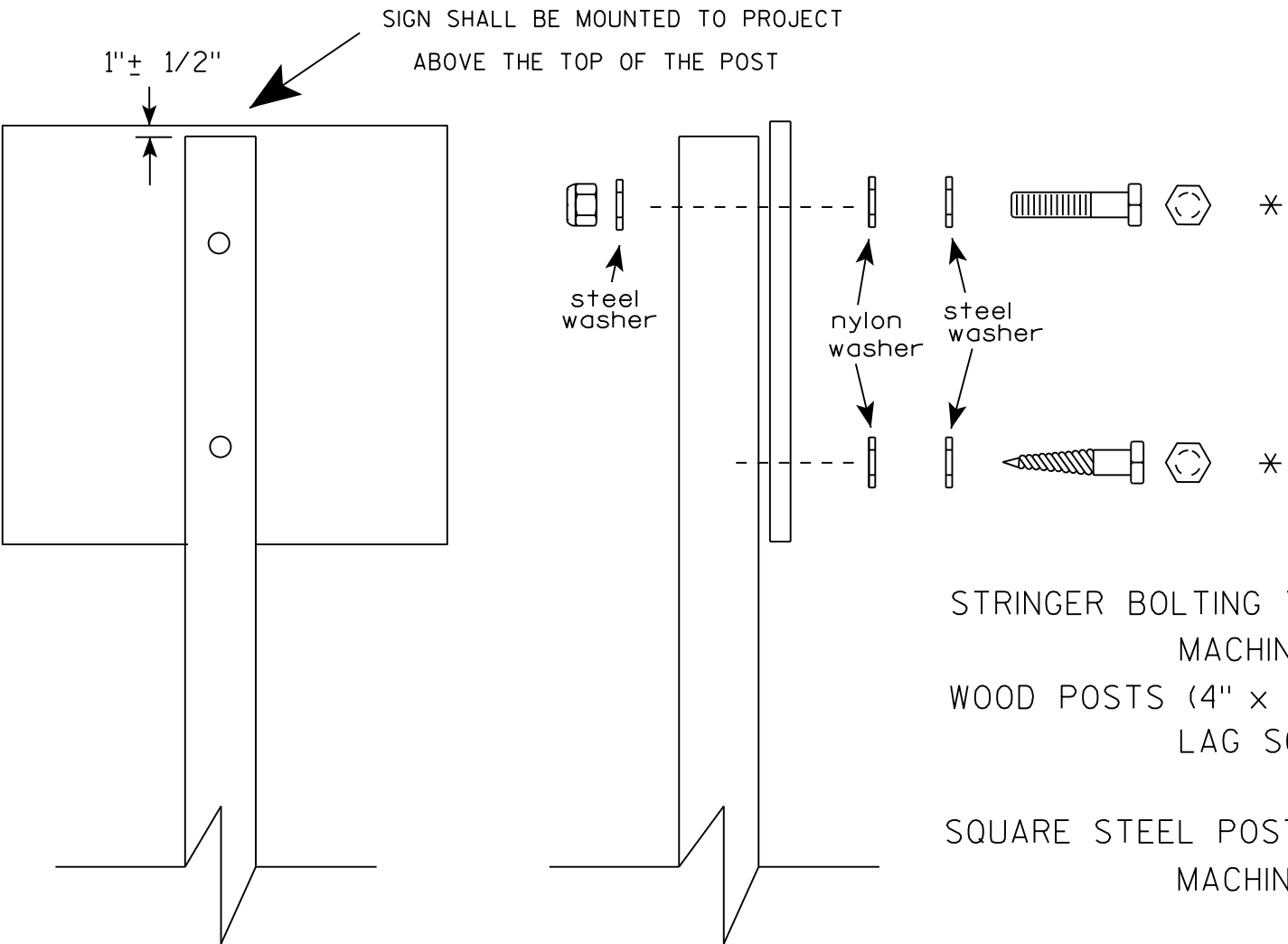
DATE 1/07/20

PLATE NO. A4-6.12

PROJECT NO:

SHEET NO:

E



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 4" or 4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 - $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
- O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

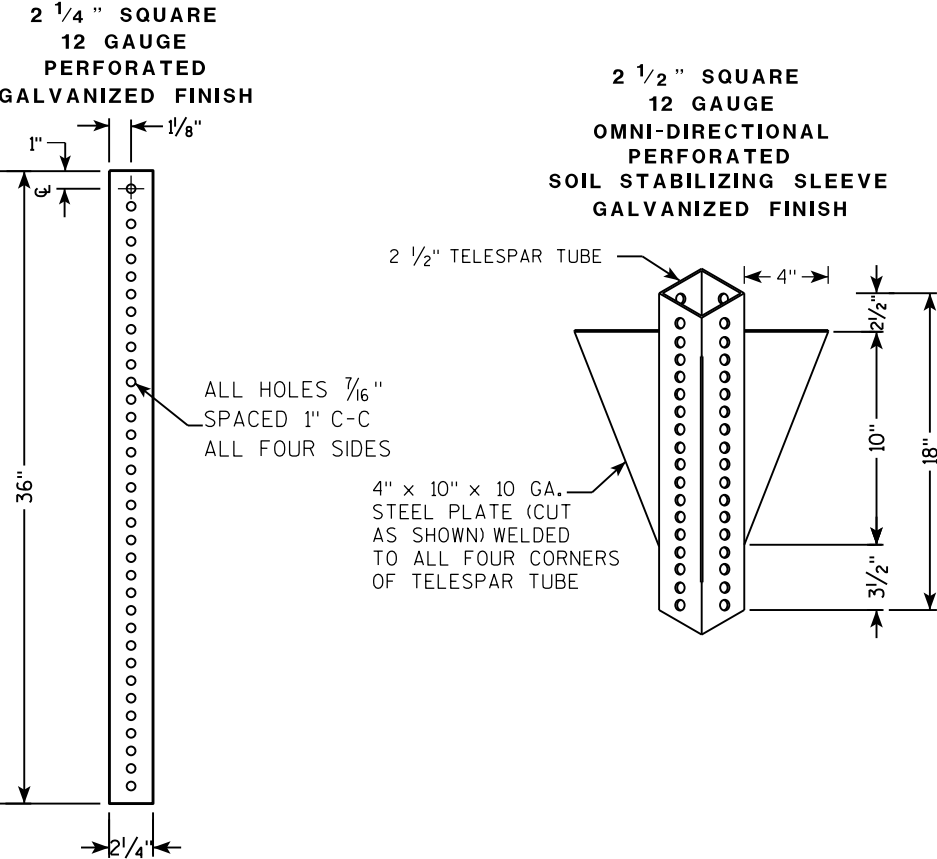
ATTACHMENT OF SIGNS
TO POSTS

WISCONSIN DEPT OF TRANSPORTATION

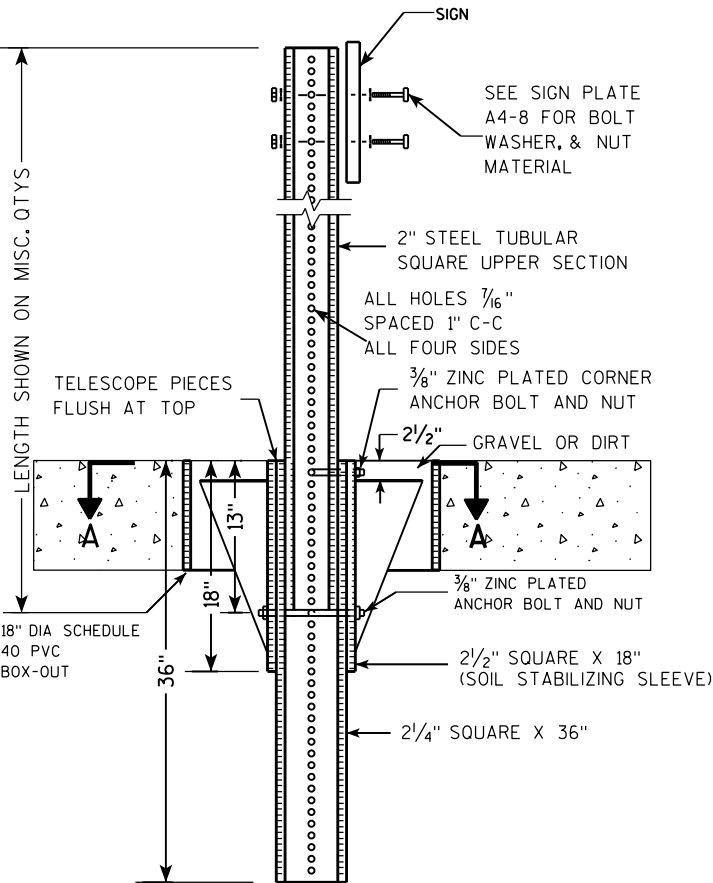
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. A4-8.8

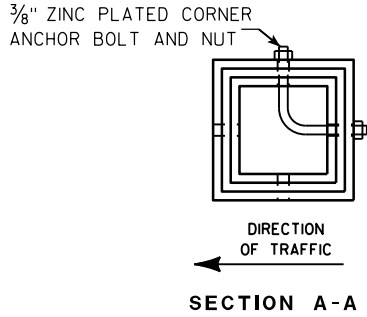
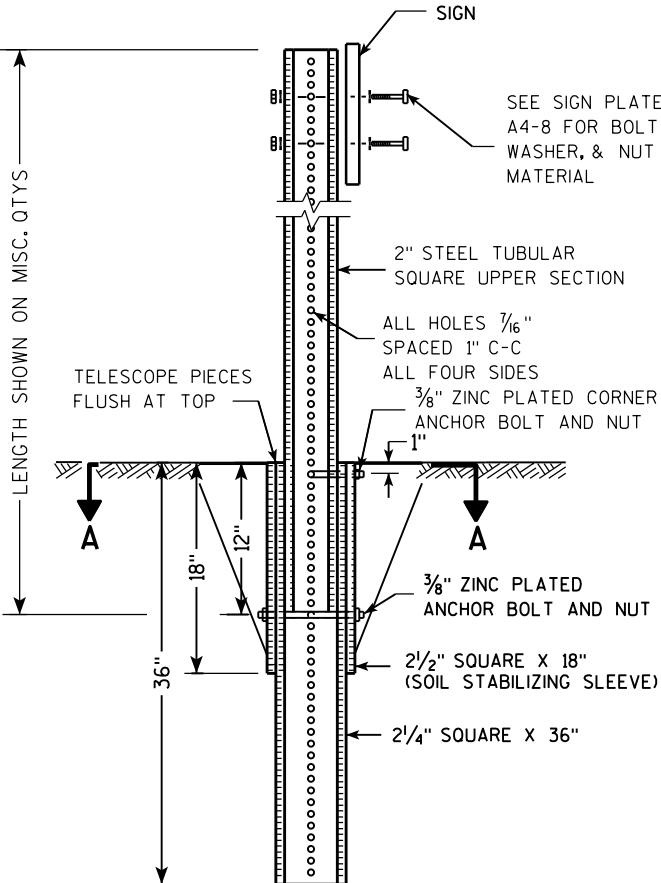
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

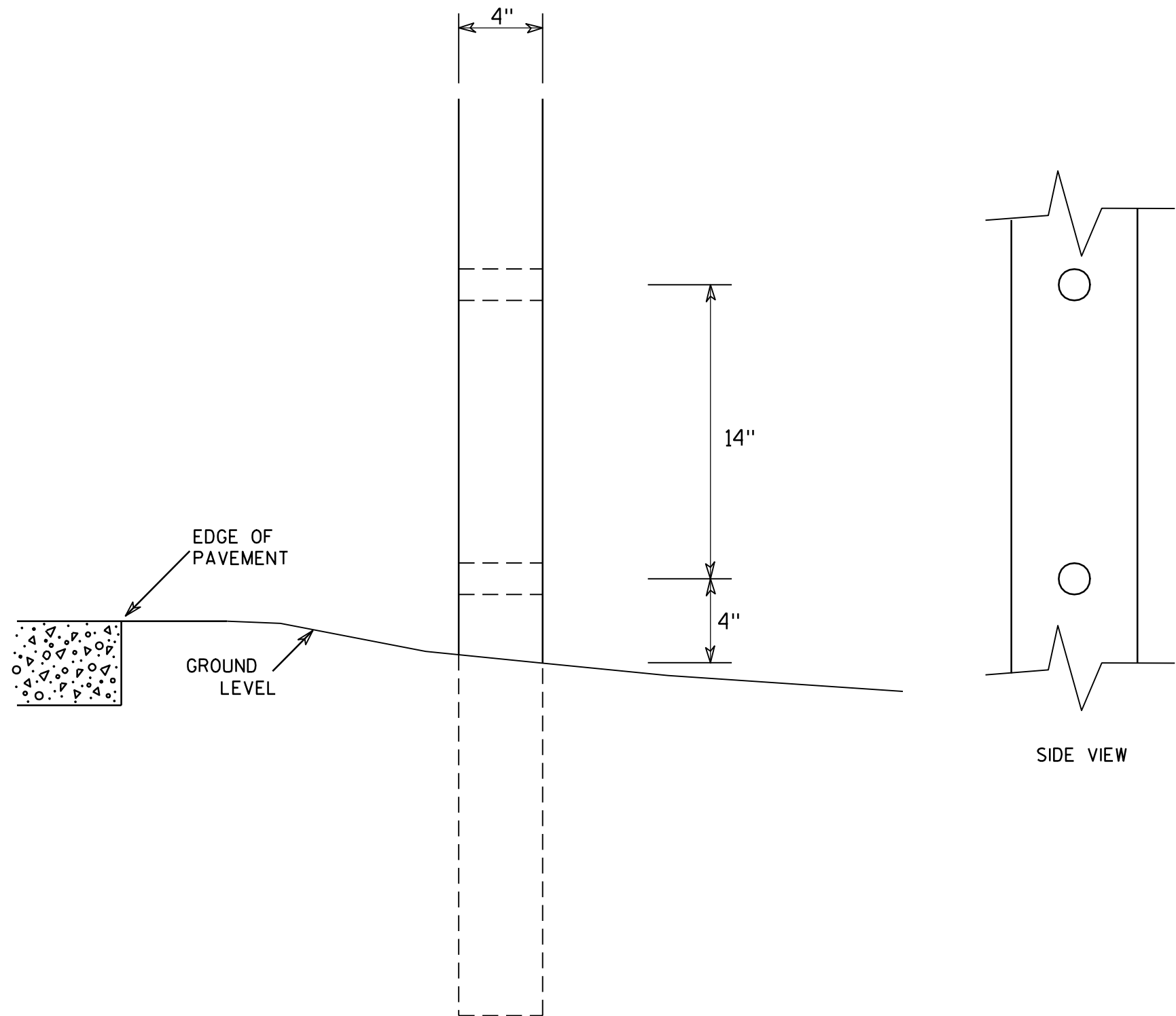
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

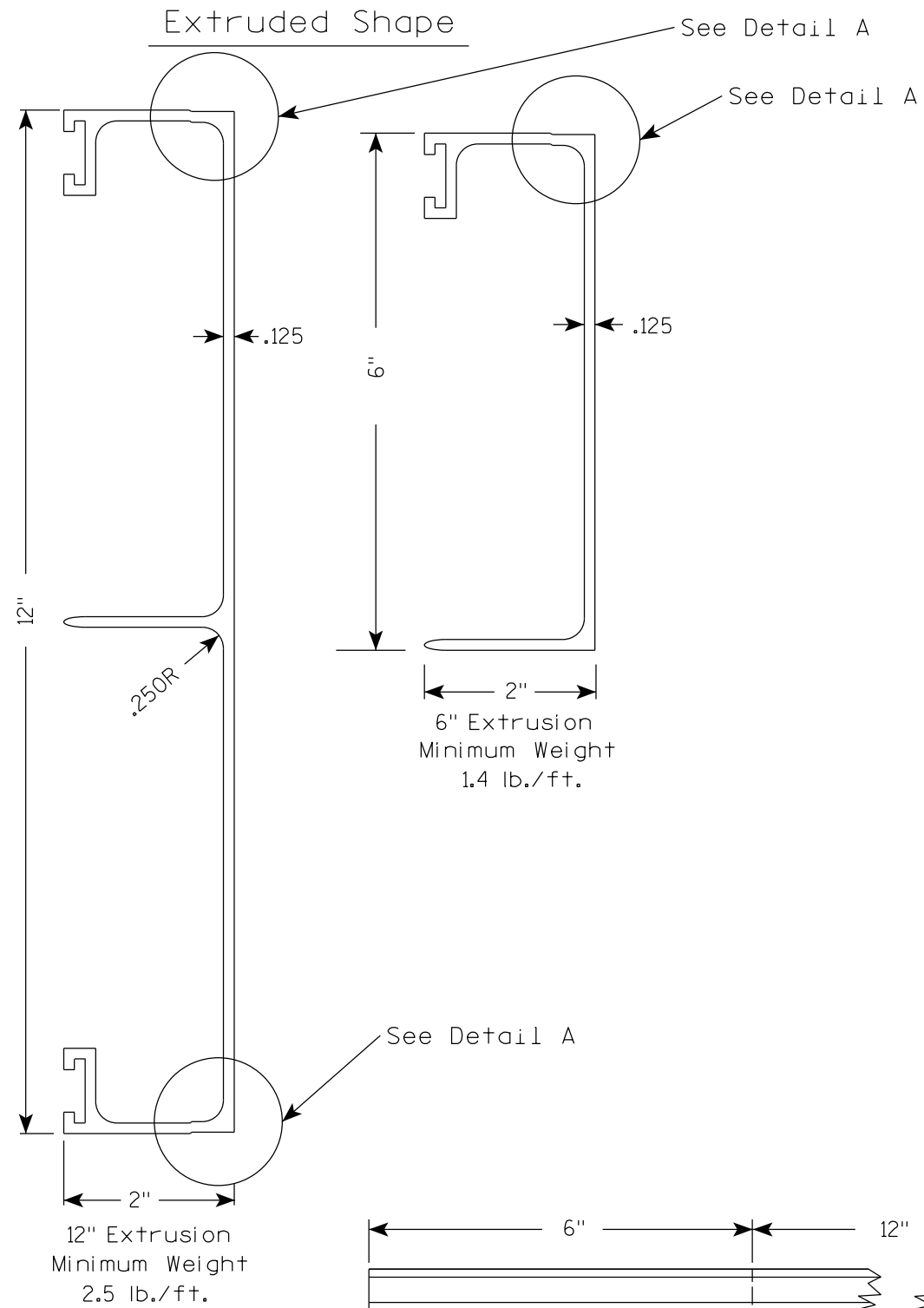
1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

4 X 6 WOOD POST MODIFICATIONS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Chester J. Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

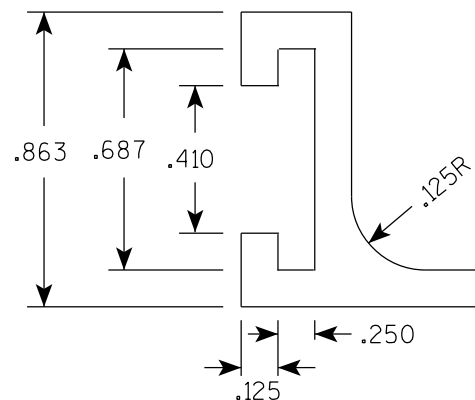
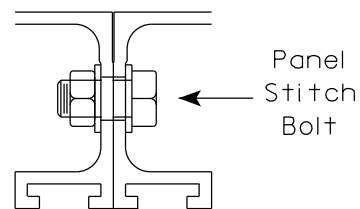
Extruded Shape

Hardware



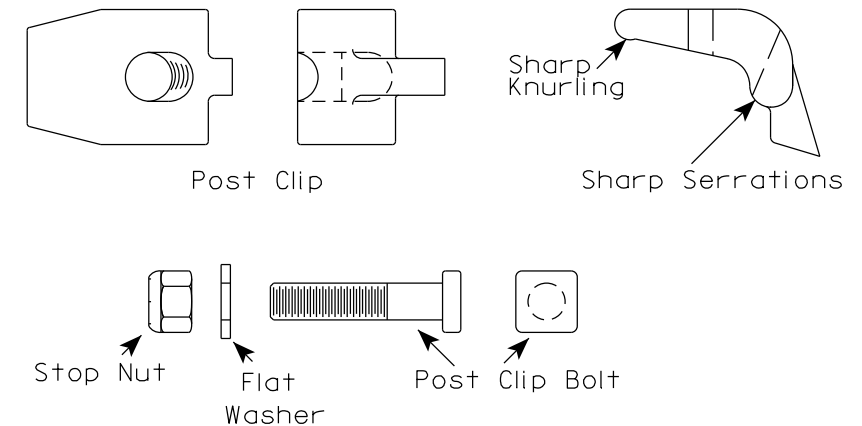
STITCH BOLT, WASHER & NUT

The hardware includes:
3/8 " - 16 X 3/4 " Economy Bolt 2024-T4 alloy
3/8 " - Stainless steel stop nut
3/8" X .064 Flat Washers, Alclad 2024-T4 alloy



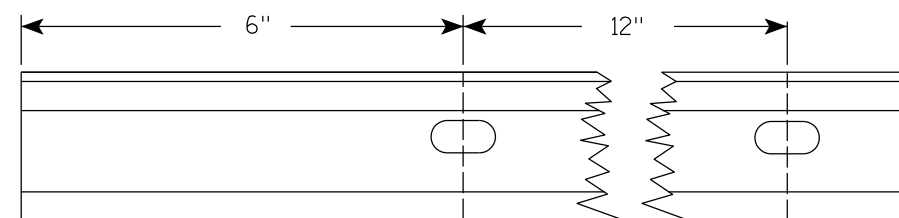
POST CLIP, POST CLIP BOLT, WASHER & NUT

Post Clip shall be Alum. Alloy 356-T6
Post Clip Bolt shall be Stainless Steel.
Flat washer shall be 3/8" X .091, Stainless Steel.
Stop nut shall be stainless steel.

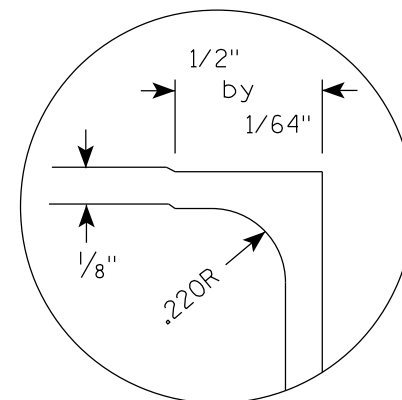


NOTES

1. The contractor may select any brand of extrusion that conforms to the illustrations or meets with the approval of the engineer, but all extrusions used on this contract shall be of the same brand.
2. Panel Stitch Bolts shall be used to assemble adjacent panels. Maximum stitch bolt spacing shall be 24" C-C, and a minimum of 4 bolts shall be used to connect any two extrusions.
3. Post Clips shall be used to attach the sign panel to the sign support.
4. Edge wrapping of sign sheeting required on all extrusions joints shown in Detail A.



Punch 7/16" x 7/8" oval holes beginning 6" in from end of extrusion 12" CC on both edges of 6" and 12" panels.



DETAIL A (EDGE WRAP JOINT)

ALUMINUM EXTRUSIONS FOR
TYPE I SIGNS

WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
For State Traffic Engineer
DATE 1/07/20 PLATE NO. A5-2.10

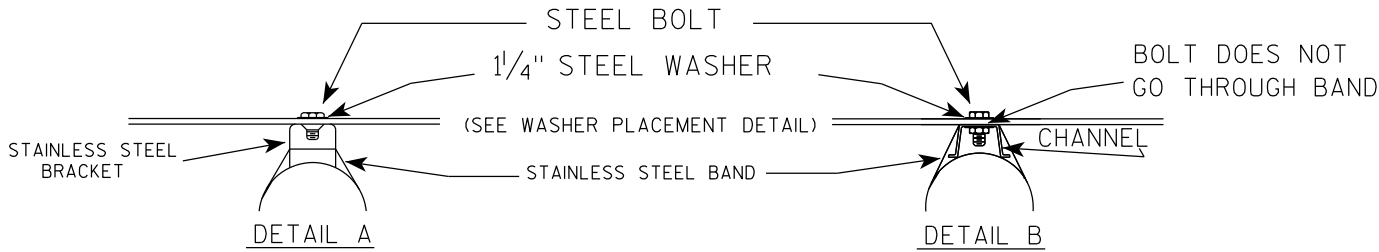
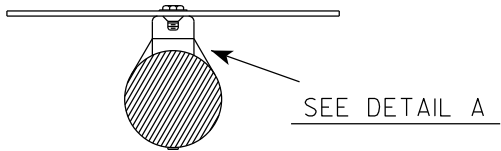
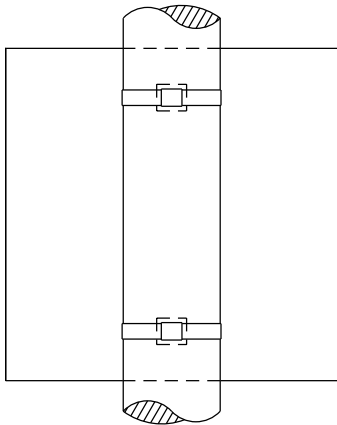
PROJECT NO:

SHEET NO:

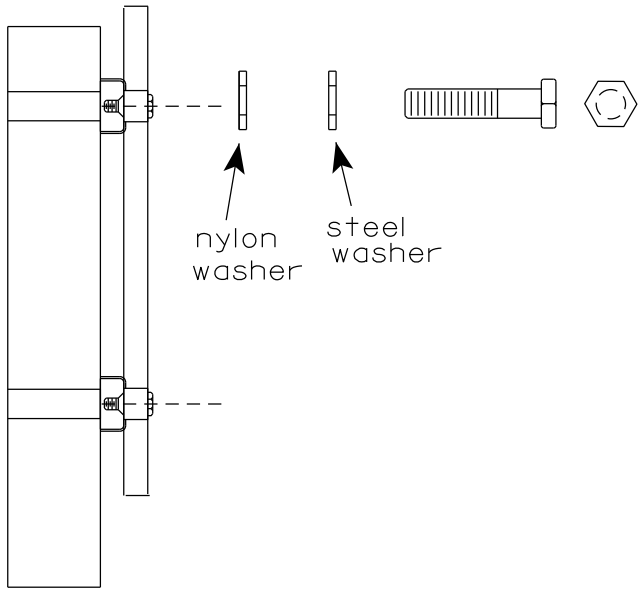
E

BANDING

SINGLE SIGN



WASHER PLACEMENT

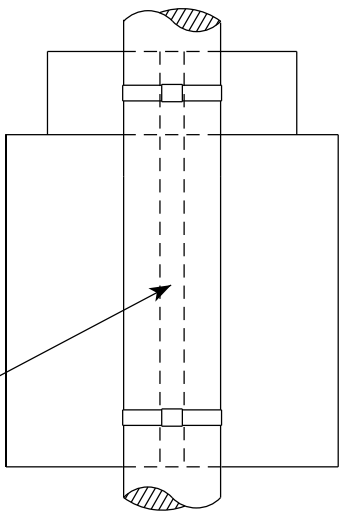


WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

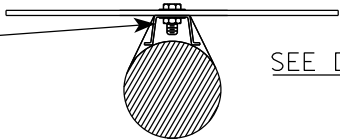
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET

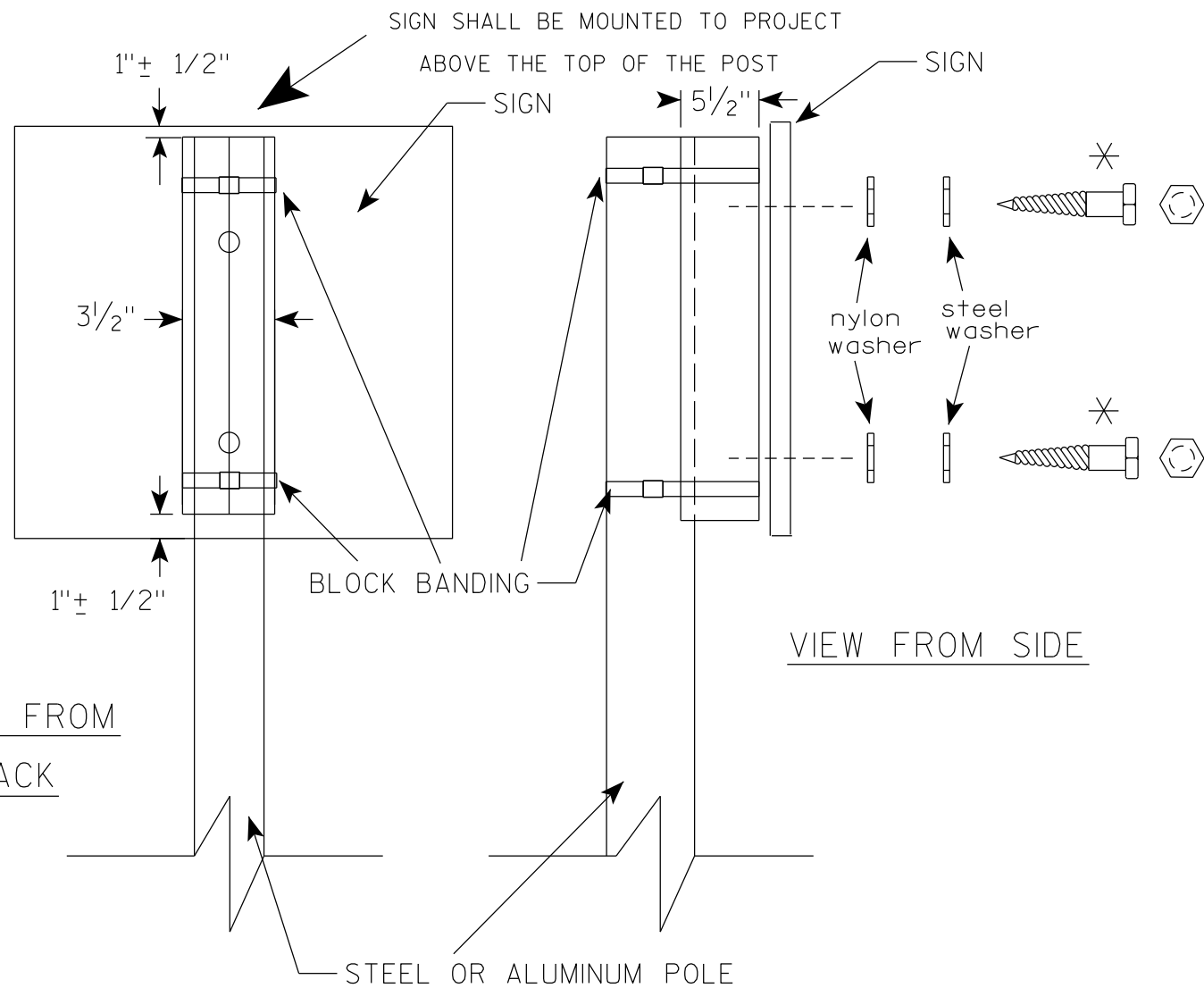


STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

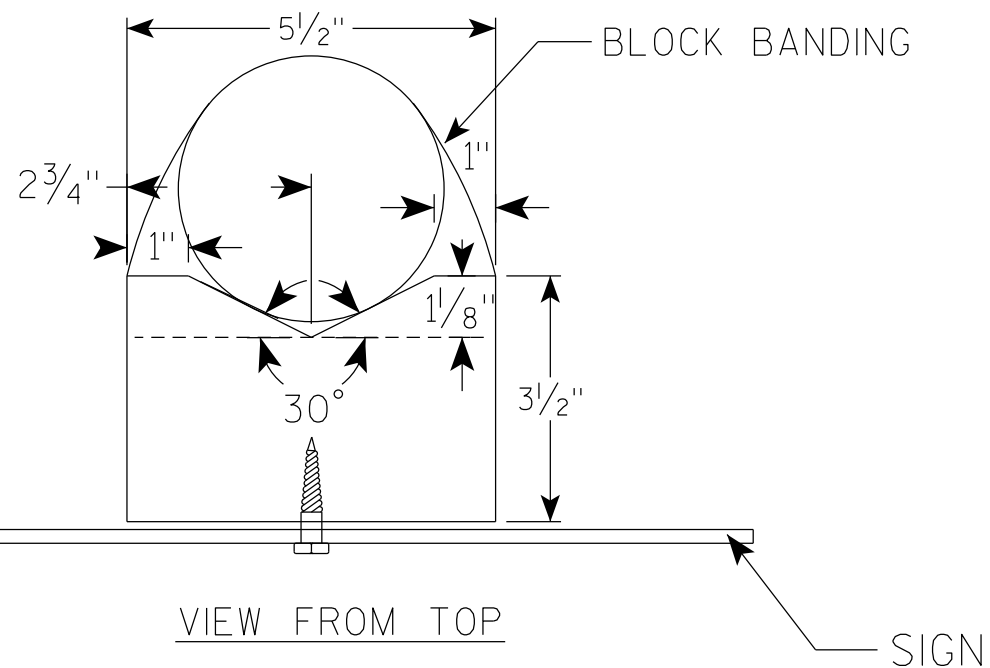
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 6/10/19 PLATE NO. A5-9.4

VIEW FROM
BACK



VIEW FROM SIDE

VIEW FROM TOP



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, $\frac{3}{4}$ " WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ "
8. NYLON WASHERS SHALL BE $1\frac{1}{4}$ " O.D. X $\frac{3}{8}$ " I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

✱ LAG BOLTS SHALL BE $\frac{3}{8}$ " X $2\frac{1}{2}$ "

BLOCK BANDING DETAIL
(V-BLOCK OPTION)

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 6/10/19 PLATE NO. A5-10.2

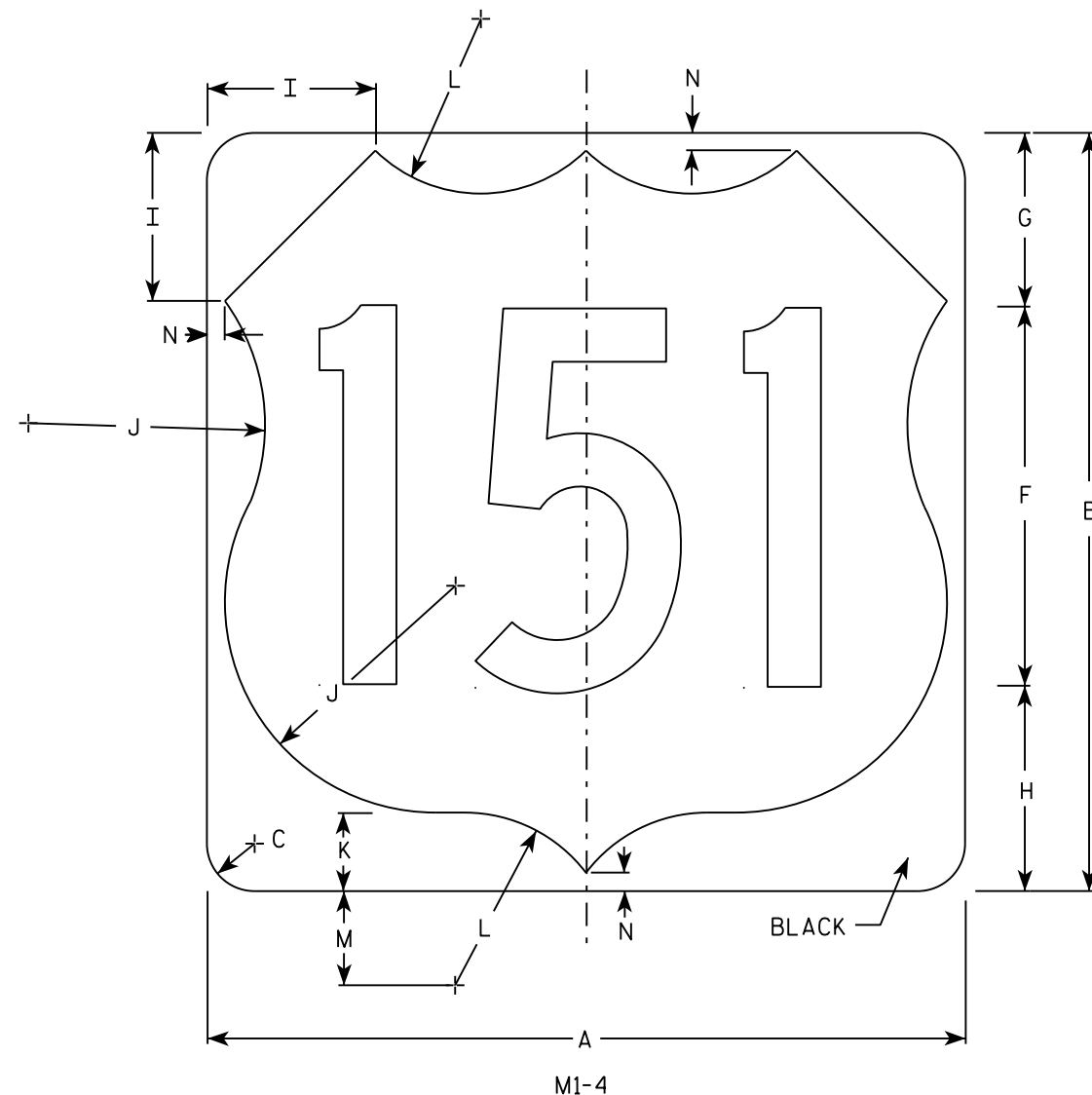
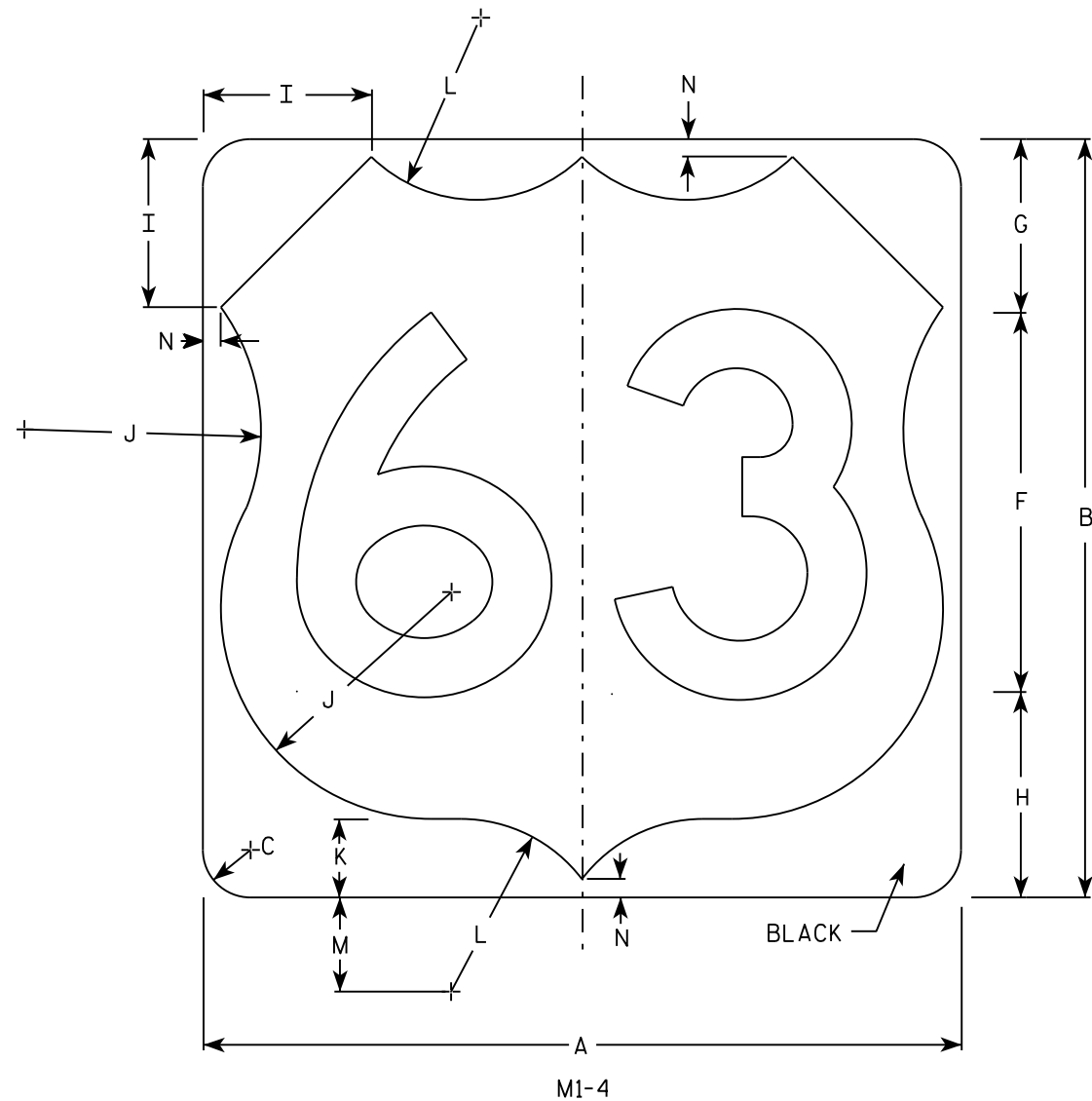
PROJECT NO:

SHEET NO:

E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - D except 3 number signs Series C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	24	1 1/2			12	5 1/2	6 1/2	5	7 1/2	2 1/2	5 1/2	3	1/2													4.0
3	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
4	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0
5	36	36	2 1/4			18	8 1/4	9 1/4	7 1/4	11 1/4	3 3/4	8 1/4	4 1/2	3/4													9.0

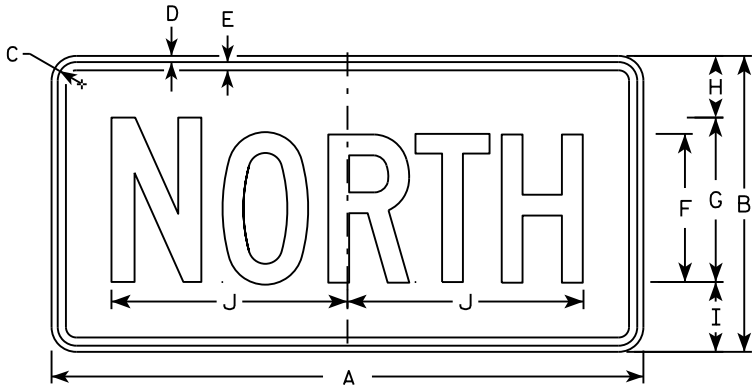
PROJECT NO:	HWY:	COUNTY:		SHEET NO:	E
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USH MARKER
M1-4 FOR ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

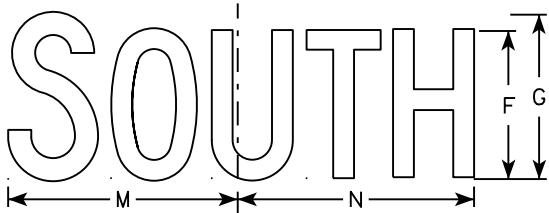
DATE 3/16/18 PLATE NO. M1-4.10



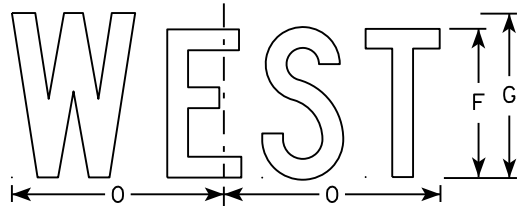
M3-1
MM3-1
MP3-1



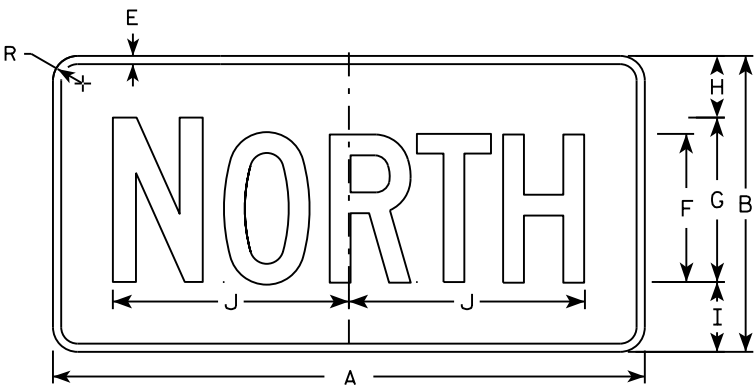
M3-2
MM3-2
MP3-2



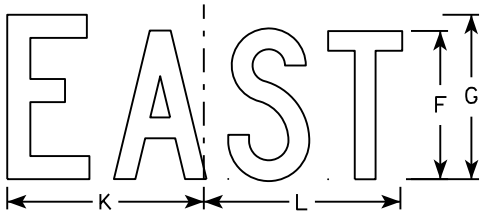
M3-3
MM3-3
MP3-3



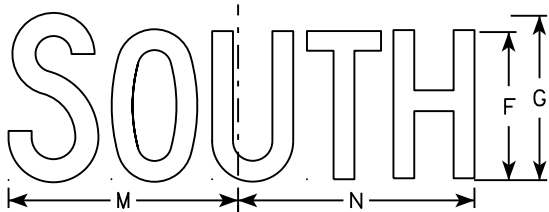
M3-4
MM3-4
MP3-4



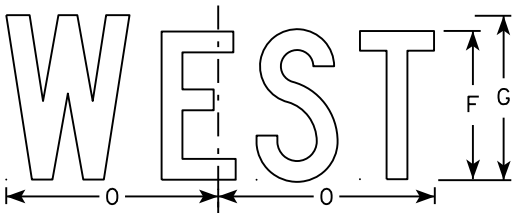
MB3-1
MK3-1
MN3-1



MB3-2
MK3-2
MN3-2



MB3-3
MK3-3
MN3-3



MB3-4
MK3-4
MN3-4

NOTES

1. All Signs Type II - Type H
2. Color:
Background - See note 5
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M3-1 thru M3-4 Background - White
Message - Black
MB3-1 thru MB3-4 Background - Blue
Message - White
MK3-1 thru MK3-4 Background - Green
Message - White
MM3-1 thru MM3-4 Background - White
Message - Green
MN3-1 thru MN3-4 Background - Brown
Message - White
MP3-1 thru MP3-4 Background - White
Message - Blue
6. Note the first letter of each direction is larger than the remainder of the message.

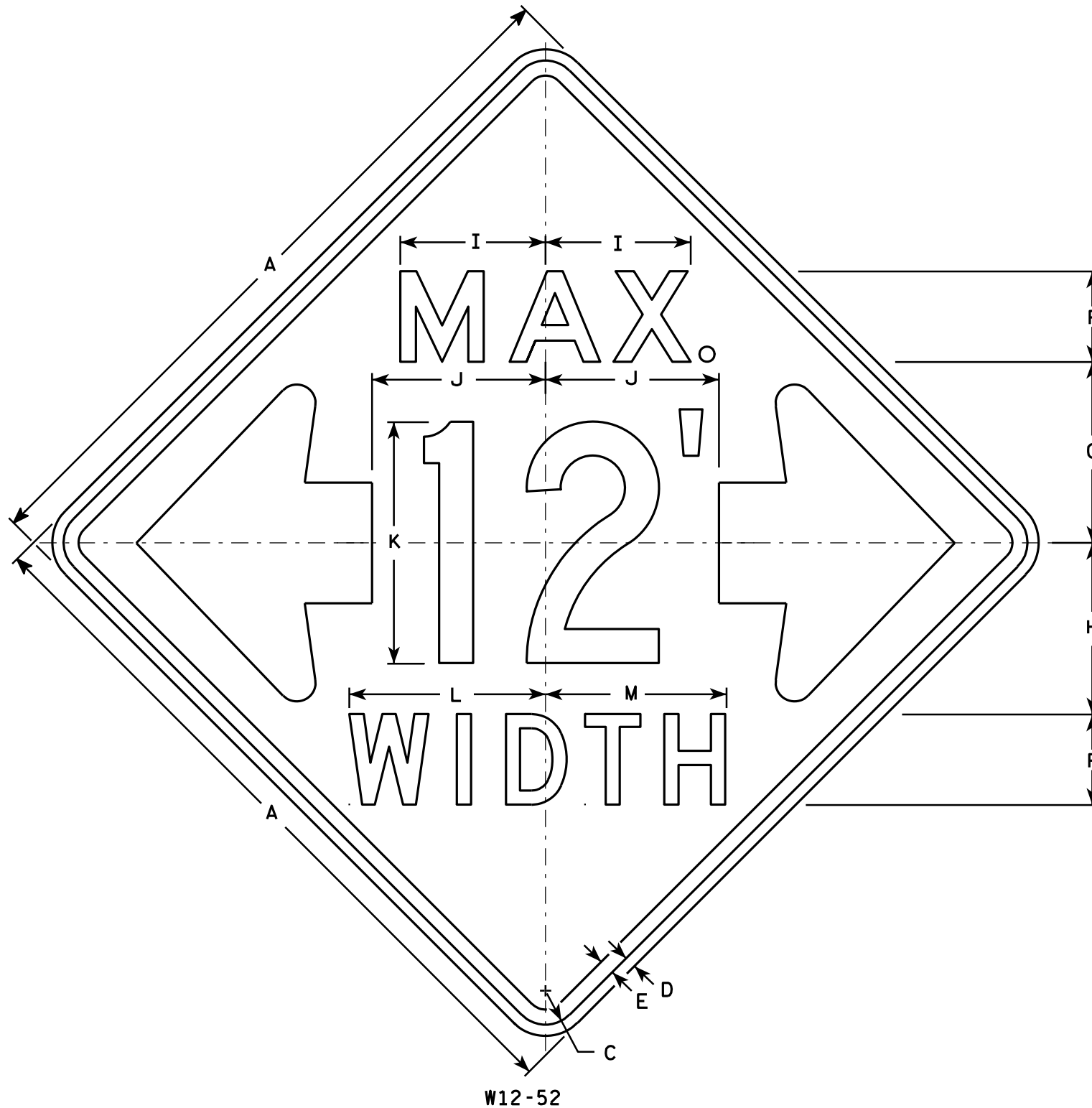
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

WISCONSIN DEPT OF TRANSPORTATION

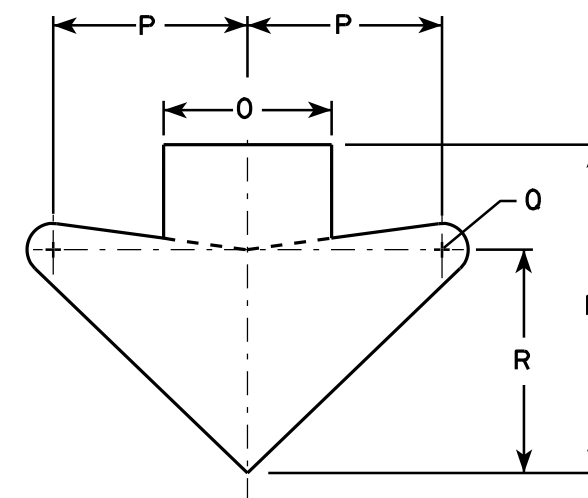
APPROVED
Matthew R. Rauch
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14



NOTES

1. Sign Is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The top line is series E, the numerals are series C, and the bottom line is series D.
6. Substitute appropriate numerals and adjust spacing as required.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
2M	48		2 1/4	3/4	1	6	12	11 3/8	9 5/8	11 1/2	16	13	12	15 5/8	8	9 1/4	1 1/4	10 5/8									16.0
3																											
4																											
5																											

STANDARD SIGN W12-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/16/11 PLATE NO. W12-52.7

PROJECT NO:

HWY:

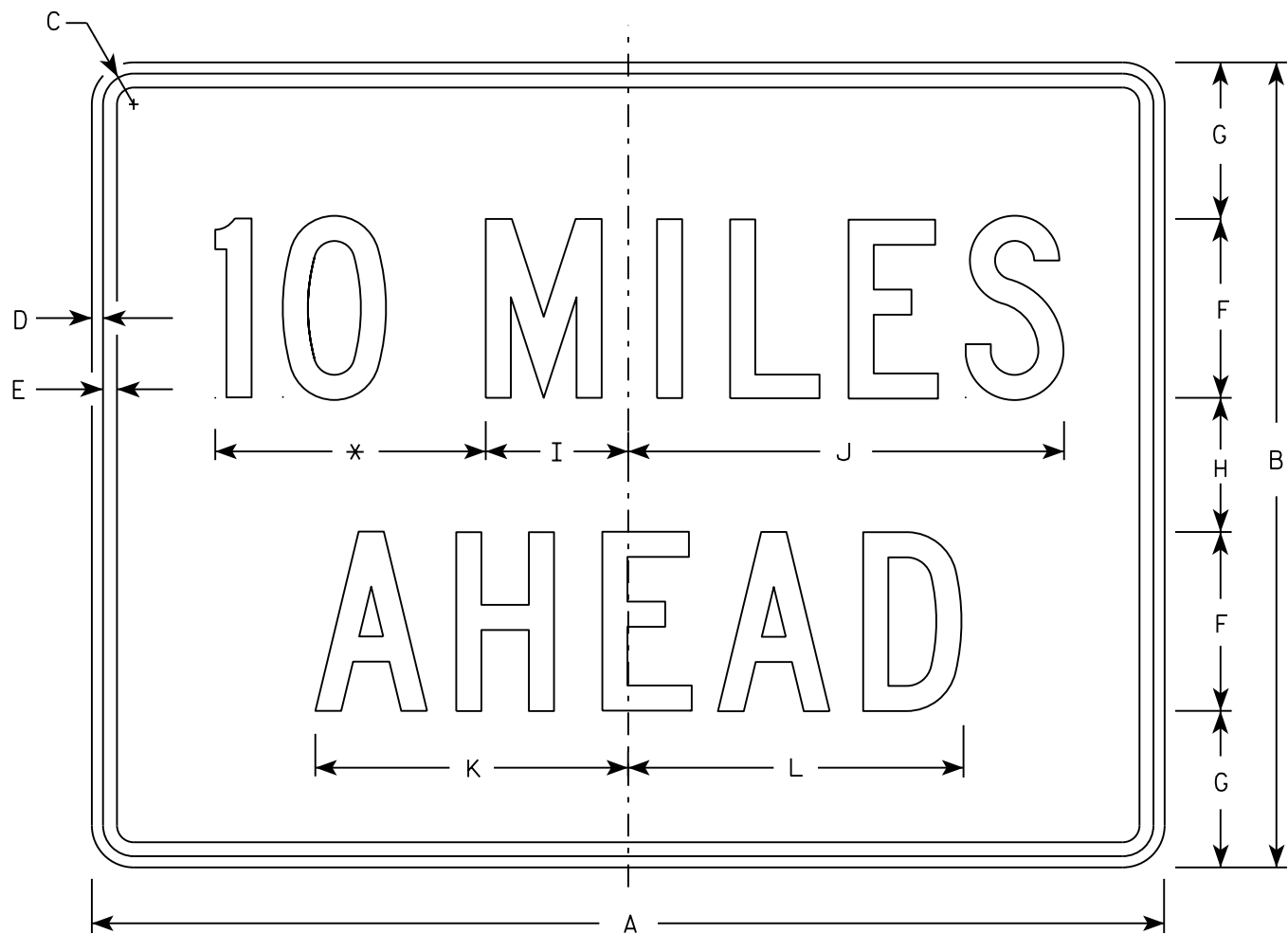
COUNTY:

SHEET NO:

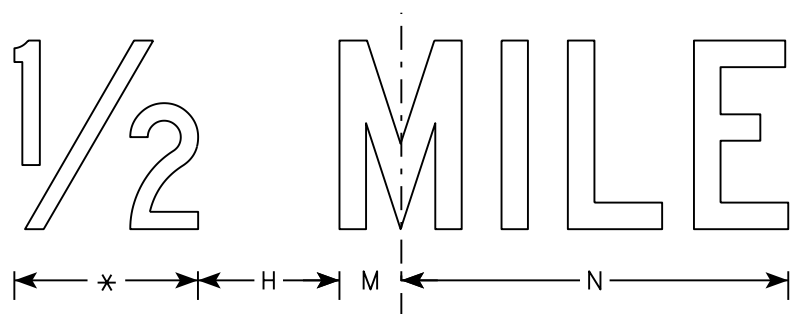
E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 5. Substitute appropriate numerals to the nearest quarter mile and optically adjust spacing to achieve proper balance.



W057-52



* See note 5

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36	24	1 1/8	3/8	1/2	6	4 1/2	3	4 3/4	14 5/8	10 5/8	11 3/8	2	12													6.0
2S	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
2M	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
3	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
4	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0
5	48	36	1 3/8	1/2	5/8	8	7	6	6 3/8	19 1/2	14	15	2 3/4	16 3/8													12.0

STANDARD SIGN

W057-52

WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Matthew R. Rauch
for State Traffic Engineer

DATE 3/21/17

PLATE NO. W057-52.2

Notes



Wisconsin Department of Transportation

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